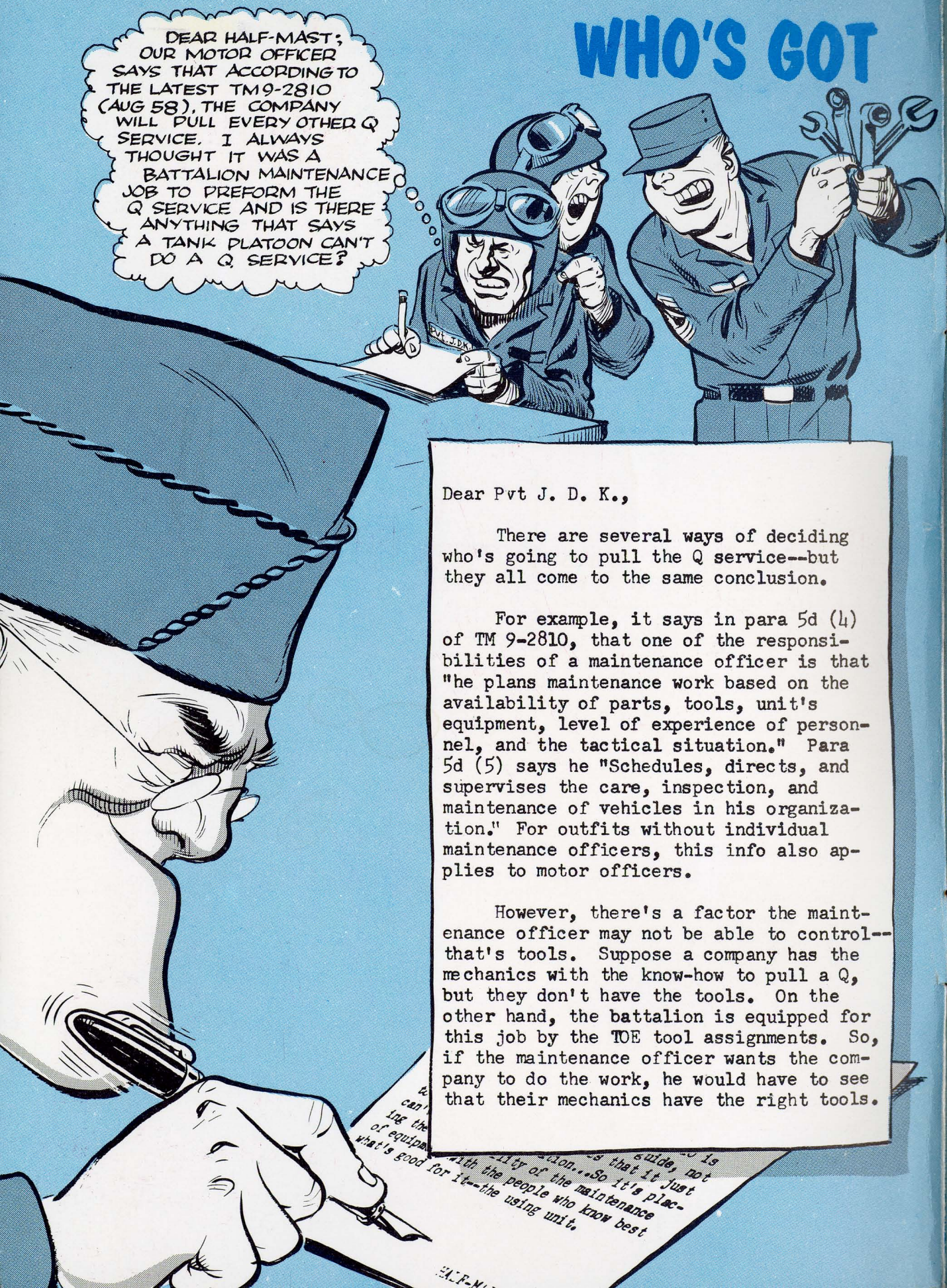
Issue 87
PS
1960 Series
THE PREVENTIVE MAINTENANCE MONTHLY
You work to keep us off deadline,
with scheduled maintenance
all the time.
So from us, the Army's gear
comes this question,
Connie dear;
If we keep performance fine,
will you be our Valentine?
WILL EISNER

WHO'S GOT



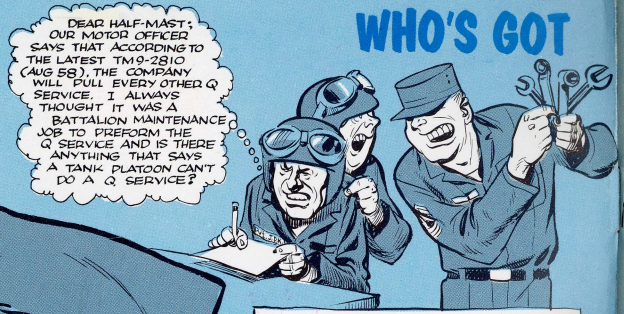
Dear Pvt J. D. K.,

There are several ways of deciding who's going to pull the Q service--but they all come to the same conclusion.

For example, it says in para 5d (4) of TM 9-2810, that one of the responsibilities of a maintenance officer is that "he plans maintenance work based on the availability of parts, tools, unit's equipment, level of experience of personnel, and the tactical situation." Para 5d (5) says he "Schedules, directs, and supervises the care, inspection, and maintenance of vehicles in his organization." For outfits without individual maintenance officers, this info also applies to motor officers.

However, there's a factor the maintenance officer may not be able to control--that's tools. Suppose a company has the mechanics with the know-how to pull a Q, but they don't have the tools. On the other hand, the battalion is equipped for this job by the TOE tool assignments. So, if the maintenance officer wants the company to do the work, he would have to see that their mechanics have the right tools.

WHO'S GOT THE PULL?



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Not only can the maintenance officer juggle assignments within his own maintenance echelon, but in some cases he can assign workloads from the next higher echelon if he makes the right arrangements with the 3rd echelon people. 'Cause it says on page 4, under para 3c, (1) that "Third Echelon maintenance may be performed by using organizations when specifically authorized by the table of organization (TOE), the maintenance allocation chart (MAC), or by specific agreement between the commanders of the direct support unit and the using units."

So, if your battalion maintenance officer decides to issue the needed tools and wants the companies or even platoons to pull the Q--that's the way the monkey wrench is gonna turn. That depends entirely what the rules are on your home grounds... and who's doing the umping.

As you can see, the new TM 9-2810 is flexible...'cause it's meant to guide, not to dictate. The Army realizes that it just can't cover every situation...so it's placing the responsibility of the maintenance of equipment with the people who know best what's good for it--the using unit.

Half-Mast

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A Li'l Exercise'll Keep
Your Hydrospring Recoil...

QUICK ON THE DRAW

If your gun hasn't been fired lately, chances are all the oil on those highly finished surfaces has drained off. Which means that the next time you try to crank one off, it'll groan like a grandma with rheumatism at a weightlifting contest.

A little exercise will cure a lot of aches and pains—'specially in your tank gun's hydrospring recoil mechanism.

Keep your recoil mechanism in tiptop shape by getting together with your support unit. They'll help you do the job. The Ordnance people don't mind second echelon doing the actual exercising—as long as you have the know-how and their okay.

Remembering that this goes only for guns with a hydrospring recoil mechanism . . . there're several ways to go about it. This depends on what type gun you're exercising and what equipment you have available.

You can use the ol' reliable M3 hydraulic oil pump, the quick-and-easy Porto-power 10-ton jack, a regular hydraulic or screw-type jack or an M62 wrecker.

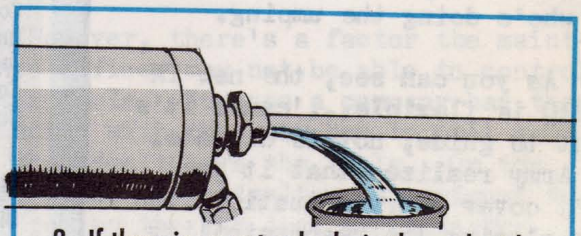
You're best off using the M62 wrecker or hydraulic or screw-type jack for your self-propelled guns—while the oil pump, Porto-power jack or M62 wrecker are good deals for your tank guns.

Let's look at the use of each piece of equipment separately.

EXERCISING WITH THE M3 HYDRAULIC PUMP

Draining the Replenisher

1. Drain the replenisher by opening the petcock in the replenisher cylinder head. Catch the oil in a clean container, 'cause it can be used again.



2. If there is no petcock, drain the replenisher by pushing down on the ball of the filling valve easy-like with a soft push rod. Remember to catch the oil in a clean container. Watch the replenisher indicator tape—when the tape stops moving in, tighten the drain plug.

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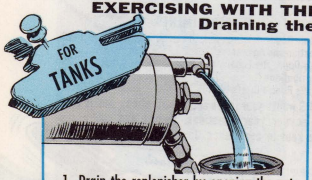

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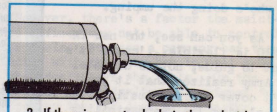

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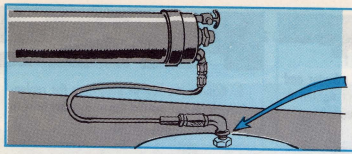
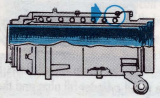


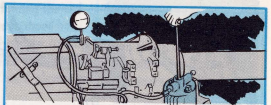
3. Disconnect the replenisher hose from the top of the recoil cylinder. If the replenisher hose has a shutoff valve, close it before exercising the recoil cylinder. That way you won't have to disconnect the replenisher hose.

To Connect the M3 Pump to Cylinder



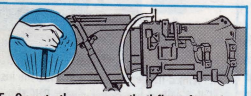
1. Remove the recoil cylinder fill plug.

2. Cap or plug the replenisher hole in the recoil cylinder.

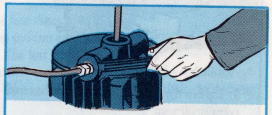


3. Insert the adapter in the fill hole and connect the pump hose to the adapter loosely.

4. Either insert a gage in the adapter or plug the gage hole.



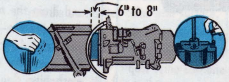
5. Operate the pump until oil flows from the loose connection—this removes air from the pump hose.



6. Tighten the pump hose connection.

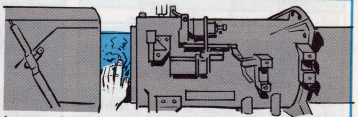
To Exercise the Gun

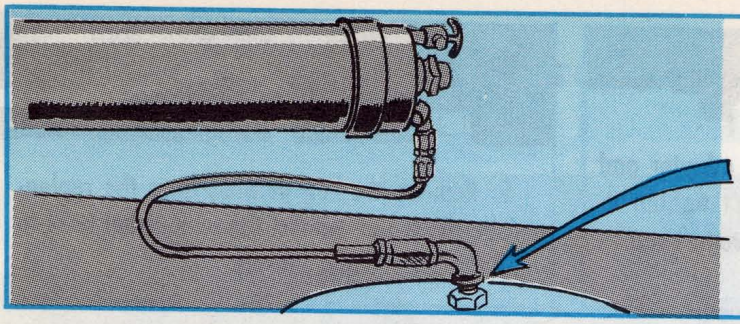
1. Work the pump till the gun moves out of battery (rearward) 6 to 8 inches.



2. Open the pump valve to let the gun go back into battery.

3. Pump the gun in and out of battery three or four times to make sure all the bearing surfaces and oil seals get a good coating of lube on 'em. The last time the gun is out of battery, let 'er stay that way and coat the outside of the gun tube or recoil cylinder with GAA. That will keep this portion from rusting. Then, let the gun go back in battery.





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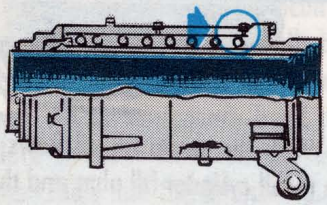

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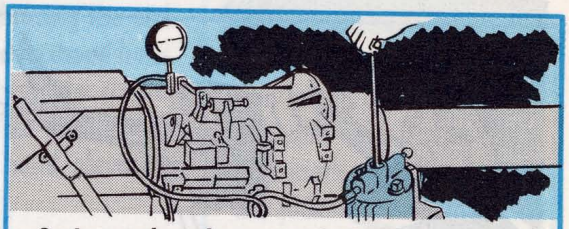

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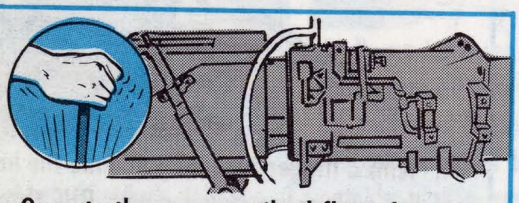

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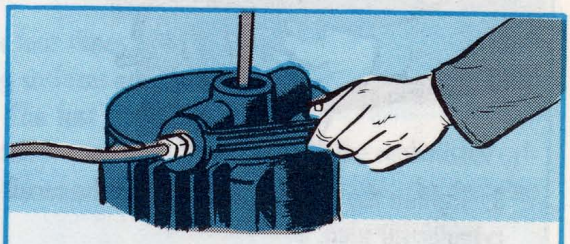

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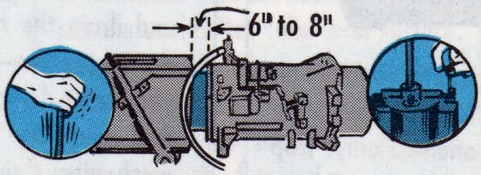

2. Open the pump valve to let the gun go back into battery.

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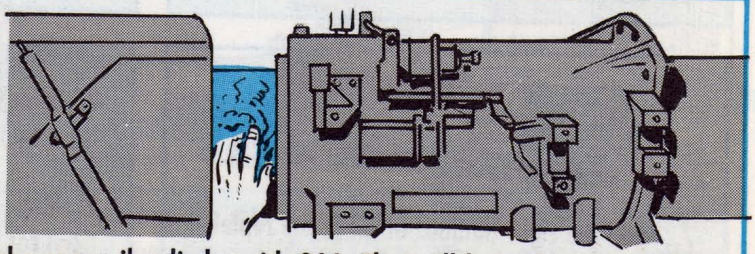
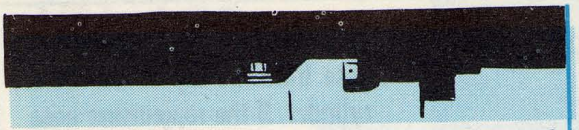
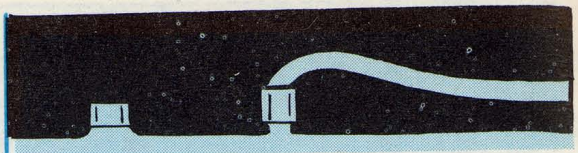


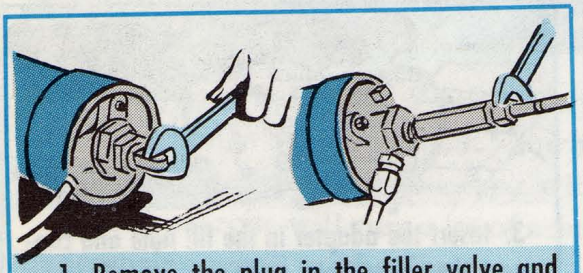


4. Remove the pump hose and adapter and replace the filler plug, but don't tighten it. You're not done yet. You still have to exercise the replenisher.



5. Remove the cap or plug from the replenisher hole and connect the replenisher hose to the recoil cylinder loosely.

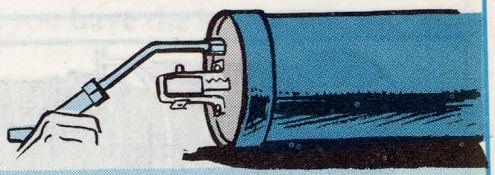
To Exercise the Replenisher



1. Remove the plug in the filler valve and connect the M3 oil pump to it.

2. Work the pump till oil flows from around the recoil cylinder fill plug and the replenisher hose connection—this'll remove the air inside. You'll know all the air's out when the oil comes out clear (free from bubbles).

3. Tighten the hose connection and the recoil cylinder fill plug.



4. With a trigger-type oil gun, lube the inside of the replenisher cylinder with OHC through the holes by the indicator tape.

5. While working the pump, keep your eye on the indicator tape. When the tape shows the cylinder is full (notches on one side only) stop pumping.

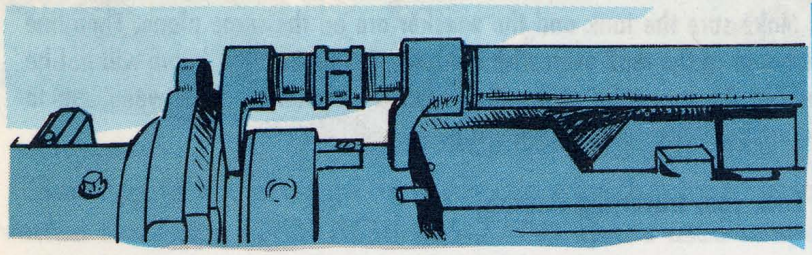
6. Open the valve on the pump and let the oil drain back into it. For best results, pump and drain the replenisher several times, but do it easy-like—pump the oil in slowly, so's you won't damage the seals in the packings. And never try to exercise your hydrospring mechanism through your replenisher.

7. Keep the right amount of oil in the replenisher—check the decal on the replenisher or cradle or scan your TM.

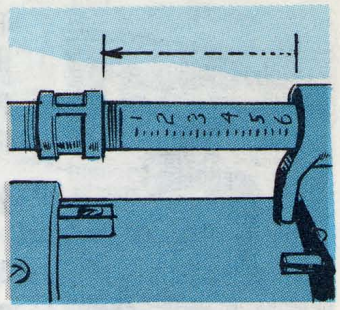
8. Remove the pump hose from the replenisher and replace the fill valve plug.

9. Make a final check of all plugs and connections for leaks and tightness. If the replenisher has a shutoff valve, make sure it's open when the job is done.

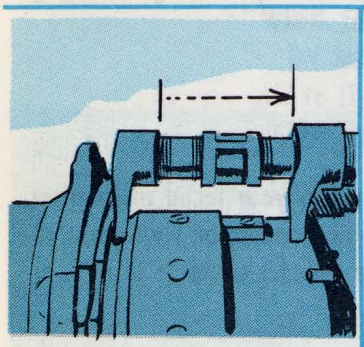
EXERCISING WITH PORTO-POWER 10-TON JACK



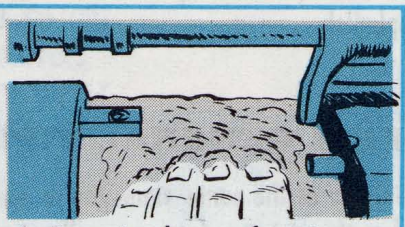
1. Place the jack in position on the recoil cylinder, bracing the end with a piece of metal or wood so's it falls between the hexhead bolts that hold the recoil piston spring retainer to the recoil cylinder cradle. If your weapon has an emergency hand elevation, like on the M41 and M47, place the jack between the emergency hand elevation bracket on the cradle and the breechring.



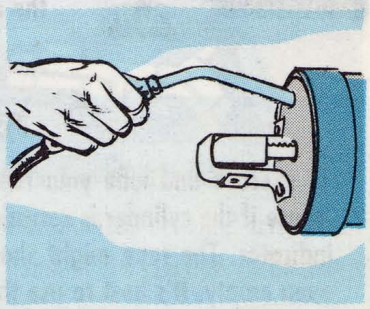
2. Work the jack till the gun moves out of battery 6 inches—you'll see the 6-in mark on the ram of the jack.



3. Release the jack so's the gun goes back in battery.



4. Pump 'er three or four times to make sure all bearing surfaces and oil seals get lubed. The last time the gun is out of battery, coat the outside of the gun tube or recoil cylinder with GAA.



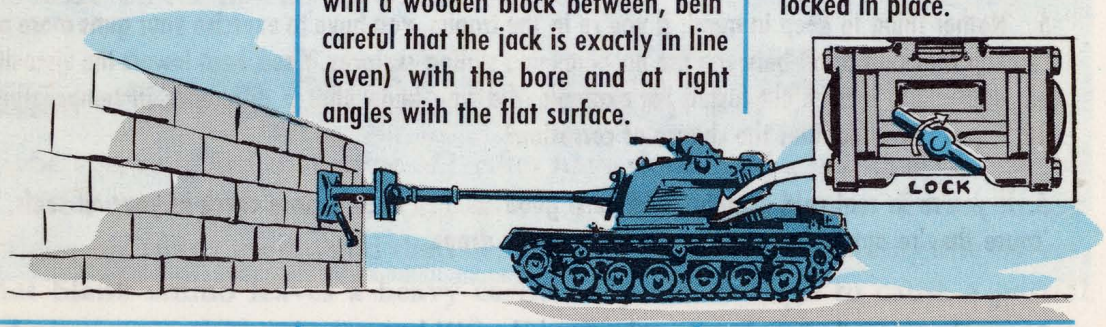
5. Also lube the replenisher cylinder. Then exercise by draining and filling the replenisher.

EXERCISING WITH THE HYDRAULIC JACK-SCREW JACK

1. Make sure your tank's on level ground.

2. Place the jack between the cannon muzzle and a flat solid wall surface, with a wooden block between, bein' careful that the jack is exactly in line (even) with the bore and at right angles with the flat surface.

3. Check to see that the traversing controls are locked in place.

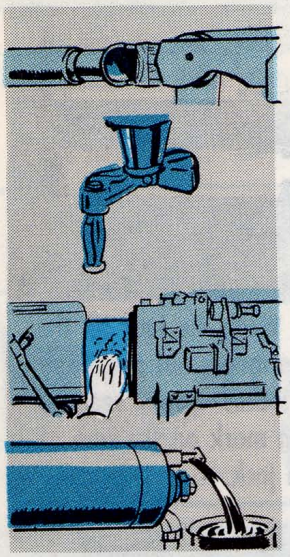


4. Exercise the gun three or four times with your jack, moving the gun out of battery six to eight inches each time.

5. The last time the gun is out of battery coat the outside of the gun tube or recoil cylinder with GAA.

6. Lube the replenisher cylinder and then exercise by draining and filling the replenisher.

EXERCISING WITH THE M62 WRECKER



1. Make sure the tank and the wrecker are on the same plane. Then line the boom of the M62 even with the tank gun tube so the boom will not be pushing the gun tube at an angle. Put a wooden block between 'em to protect both the boom and the tube.

2. Lock your traversing controls.

3. Move the boom back and forward three or four times, letting the tube move in and out six to eight inches each time.

4. The last time the gun is out of battery coat the outside of the gun tube or recoil cylinder with GAA.

5. Lube the replenisher cylinder and then exercise by draining and filling the replenisher.

A FEW GENERAL TIPS

1. Exercise and lube your replenisher at the same time you're exercising your recoil mechanism 'cause if the cylinder is corroded or the piston is frozen, you'll get a false reading on your recoil oil indicator. The tape might show on the FULL mark when actually the cylinder could be low . . . or even empty. It's best to use the M3 oil pump to do the job.

2. Remember to coat the exposed surfaces of the recoil cylinder or gun tube lightly with GAA during exercising. It'll help protect 'em till next time.

3. Never try to exercise your hydrospring recoil by placing the gun tube against a solid surface and driving the tank forward. You'll end up with either a busted wall or a busted tube, or both.

4. Maybe you've got a tank or M52 105-mm SP howitzer with a chrome-plated tube . . . no matter, you still have to exercise 'em every six months, like it says in Change 1 (25 Aug 58) to TB Ord 303.

5. 'Nother thing to keep in mind: if you're in the tropics, you have to exercise your guns more often to keep that film of oil between the packings and sliding surfaces. Y'see, heat lowers the viscosity of oil, and makes it ooze out faster. For example, did you know that a difference in temperature of 18°F. just about doubles the chance of corrosion?

6. If you're in real cold climates, it'd be a good idea to keep a close check in your oil seals, too, 'cause they're apt to freeze up when the mercury drops.

Now that you know how to do the job, it'll be easy to exercise your guns before firin' 'em, too, in order to keep the packings from being torn by the firing. And, o'course, whenever you exercise your weapon, you'll make a note of it in your Weapon Record Book.

SPOT THAT HIT

Hey, now.

Some guys are giving Uncle fits the way they're treating the commercial observation telescope (FSN 6650-625-7779) that's used to spot hits on the rifle range.

The 'scopes aren't used tactically. They're for guys in training and so aren't sealed and don't have shock mountings like the tactical M48 and M49 observation telescopes. In other words, leave 'em in the supply room and in their case when you go out on maneuvers. Water, dirt and hard knocks will ruin the commercial jobs.

There aren't any spare parts for the scope so when one becomes fouled up, your support unit'll give you another one in exchange for yours. The direct exchange is provided for by SB 9-173, (3 Oct 58).

You use TM 9-2300-203-12 if you're with a M84 SP 4.2-in mortar, right?

That's fine and dandy, but forget about the second Maintenance Allocation Chart in the TM that refers to the mortar mount. That'd be from the middle of page 510 to about the middle of page 511.

The MAC on the mortar mount needs fixing and it's due for a face-lifting.

SHOOT, CLEAN

Maybe you've heard that some M1 rifles have developed a bad case of "ringed bore". Don't worry—it's not contagious to you, but your rifle can develop a bad case if you fire blank ammo and then fire ball ammo without cleaning the barrel.

That blank ammo leaves a heavy carbon deposit—enough to cause a partial barrel obstruction. Then when you fire ball ammo you get excessive pressures that'll sometimes cause a bulged or ringed barrel.

So the cure to that disease of the barrel is clean—that's right—clean right after you fire blank ammo.

ARMAMENT

BE YOUR OWN INSPECTOR ON THE... 81MM

Comes a time in a man's life when he's sweating out an inspection. And what he wouldn't give to trade places with those inspectors—a week's pay, a date with Brigitte, a 3-day pass, or—you name it.

What if your CO said to you, "You are to help with inspection today." What kind of an inspector would you be? It would depend upon whether you were looking at your own equipment or running an eagle eye over someone else's equipment.

It wouldn't make much difference whose equipment's being inspected, or who's doing the inspecting if it's ready. Naturally you're going to have to know what to look for if you want your piece of equipment to be inspection-ready.

Say you've got the 81MM mortar M29, here's what you'd look for: (The items underscored are major deficiencies.)

TOOLS AND EQUIPMENT—missing, damaged.

PUBLICATIONS—(TM 9-3064, LO 9-260, ORD 7 SNL A-82) missing, torn.

Muzzle cover, FSN 1015-723-7701

M6 chamber cleaning brush, FSN 1005-610-8828

M8 cleaning staff, FSN 1015-557-0617

Wrench, socket head screw, 5/16 in hex FSN 5120-240-5274

CANVAS COVER – mildewed, does not fit, loose grommets, ripped, rotted

Screwdriver, offset, FSN 5120-240-5232

BASEPLATE—rusty, inner ring socket cap tight, latches won't work, inner ring socket cap tight, enlarged or damaged, inner ring socket cap collar loose, damaged.

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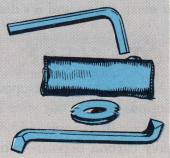
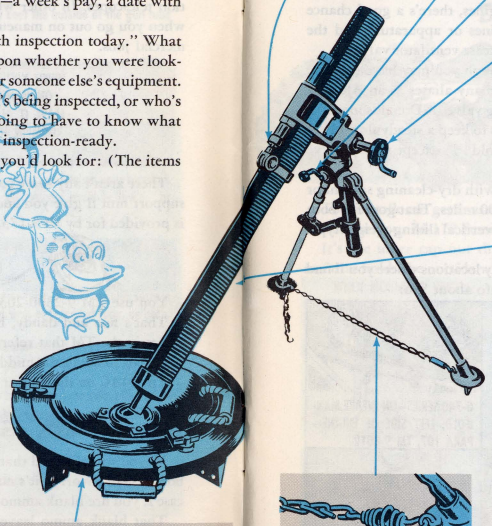


CANVAS COVER – mil-dewed, does not fit, loose grommets, ripped, rotted

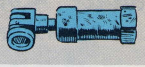
Screwdriver, offset, FSN 5120-240-5232



BASEPLATE—rusty, inner ring socket cap tight, latches won't work, inner ring socket cap tight, enlarged or damaged, inner ring socket cap collar loose, damaged.

MORTAR M29

SHOCK ABSORBER—springs worn, corroded, damaged, loose, clevis lock pin loose or damaged, mount attachment ring damaged.



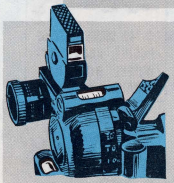
CROSS-LEVEL VIAL – loose, broken.

ELEVATING MECHANISM – does not raise and lower smoothly, binds, excessive backlash.

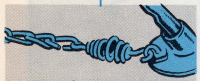
TRAVERSING MECHANISM – traversing spindle doesn't work smoothly, binds, excessive backlash.

BARREL—dented, out of round, powder fouling, corroded, recesses scored, base cap not seated right, gas leakage (you can tell by carbon deposit around outside of cap), foreign material in barrel.

FIRING PIN—broken, worn, loose, collar binds, bent, not seated right, gas leakage (carbon deposits around outside of cap).



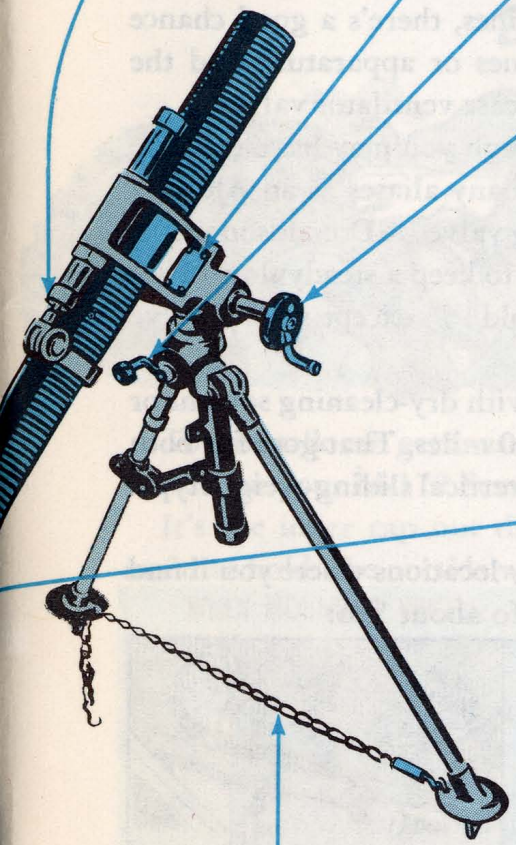
SIGHT—glass broken, can't read markings on scales, dovetailed socket and latch worn or damaged.



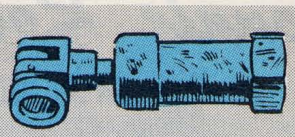
BIPOD—legs dented, chain broken, chain spring broken, bent.

INSTRUMENT LIGHT—broken, wiring frayed, battery dead.

MORTAR M29

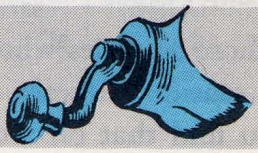


SHOCK ABSORBER—springs worn, corroded, damaged, **loose,** clevis lock pin **loose** or **damaged,** mount attachment ring **damaged.**

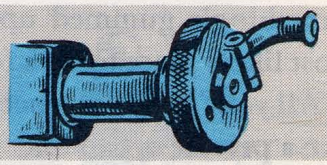


CROSS-LEVEL VIAL — loose, **broken.**

ELEVATING MECHANISM — does not raise and lower smoothly, **binds, excessive backlash.**

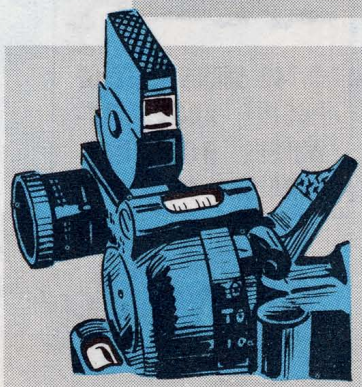


TRAVERSING MECHANISM — traversing spindle doesn't work smoothly, **binds, excessive backlash.**

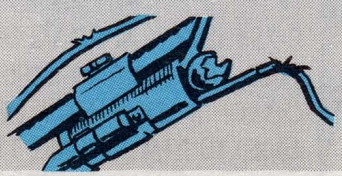


BARREL—**dented, out of round,** powder fouling, corroded, recesses scored, base cap not seated right, **gas leakage** (you can tell by carbon deposit around outside of cap), **foreign material in barrel.**

FIRING PIN—**broken,** worn, loose, collar binds, **bent,** not seated right, **gas leakage** (carbon deposits around outside of cap).



SIGHT—glass broken, can't read markings on scales, dovetailed socket and latch **worn or damaged.**



INSTRUMENT LIGHT—broken, wiring frayed, battery dead.

BIPOD—legs dented, **chain broken,** chain spring broken, bent.

Connie Rodd's

"SHORT 'N SWEET DEPT"

Blocked breathers

Are those M-series wheeled vehicles heaving up oil from their crankcases like a crew of seasick sailors?

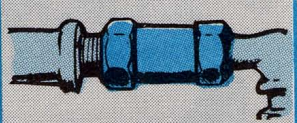
If you find that oil won't stay down in those engines, there's a good chance something's gummed up in your vehicle breather lines or apparatus. And the most likely place to look for this gum-up is in the crankcase ventilator valves.

All your M-series wheeled vehicles have 'em . . . though you may have to make like a private eye to find 'em. Besides, they've got as many aliases as an Alcatraz inmate . . . names like ventilator regulator . . . metering valve . . . Donaldson valve. Whatever moniker these valves wear, their purpose is to keep a steady flow of air through the crankcase and up into the intake manifold . . . except when you've got the air flow shut off while fording.

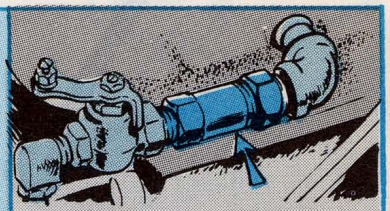
Most of the TM's tell you to clean these gadgets—with dry-cleaning solvent or volatile mineral spirits—every six months or every 6000 miles. That goes for both types . . . the spring-operated horizontal type and the vertical sliding-weight type. Both are controlled by intake manifold vacuum.

To help you spot 'em quick, here're the most likely locations where you'll find these valves and places in TM's where you'll find info about 'em:

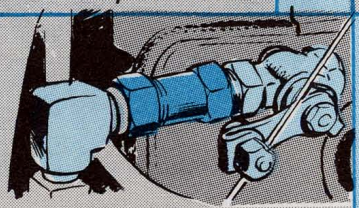
SPRING OPERATED HORIZONTAL TYPE



G-742 SERIES—LEFT OF ENGINE, ABOVE FLY-WHEEL HOUSING—PARA 321, TM 9-8022



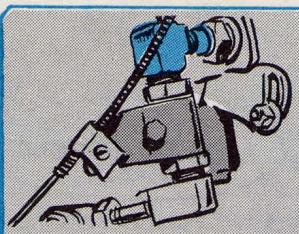
G-740 SERIES—ON INTAKE MANIFOLD, LEFT SIDE OF ENGINE—PARA 107, TM 9-8012.



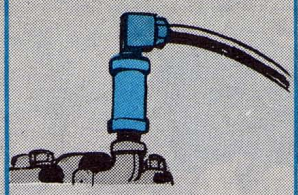
G-758 SERIES—AT INTAKE MANIFOLD, LEFT FRONT OF ENGINE—CHANGE 3, TM 9-8014 (NOTE ADDED TO ITEM 31, TABLE 111).

G-749 SERIES—LEFT OF ENGINE, UNDER CARBURETOR—PARA 114, TM 9-8024

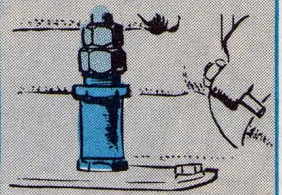
VERTICAL SLIDE WEIGHT TYPE



G-741 SERIES—RIGHT OF ENGINE, BELOW CARBURETOR—PARA 117, TM 9-8030.

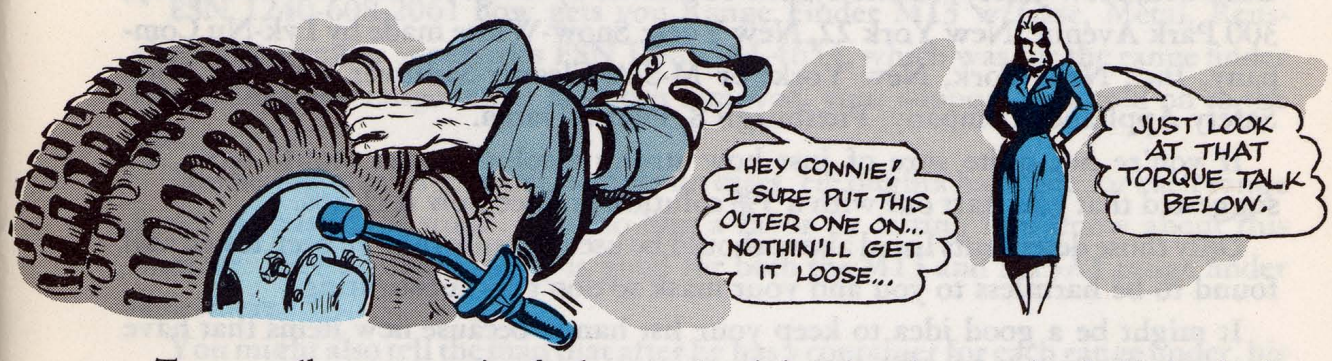


G-744 SERIES—TOP OF ENGINE, ON REAR ROCKER ARM COVER—PARA 106a(7), TM 9-8028.



G-792 SERIES—REAR OF ENGINE, COVER VENTILATION STRAINER—PARA 107, TM 9-8002.

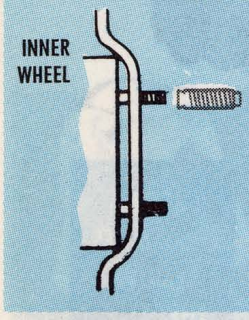
Dual wheel torque



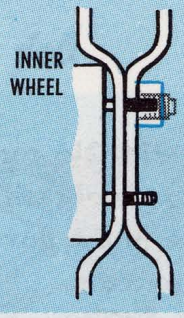
Torque talk can get twisted when you're tightening the nuts that hold the dual wheels on your M-172 Semi-trailers.

It's the inner cap nut that holds the inside wheel to the hub, and the outer nut that holds the outside wheel to the hub.

WHEN MOUNTING WHEELS:



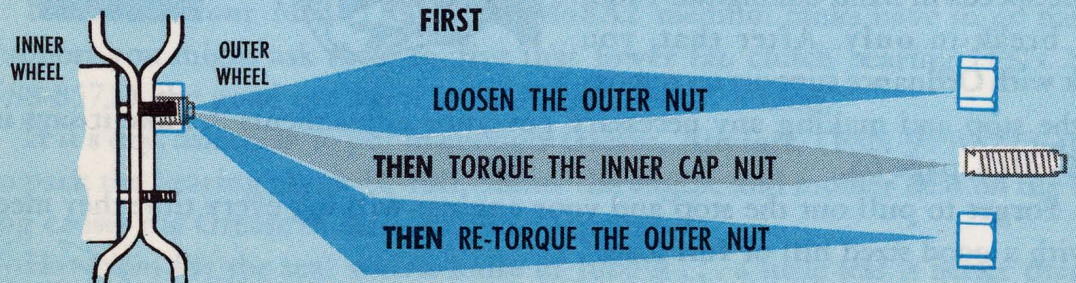
FIRST TORQUE THE INNER CAP NUTS THAT HOLD THE INSIDE WHEEL TO 450-500 FOOT-POUNDS



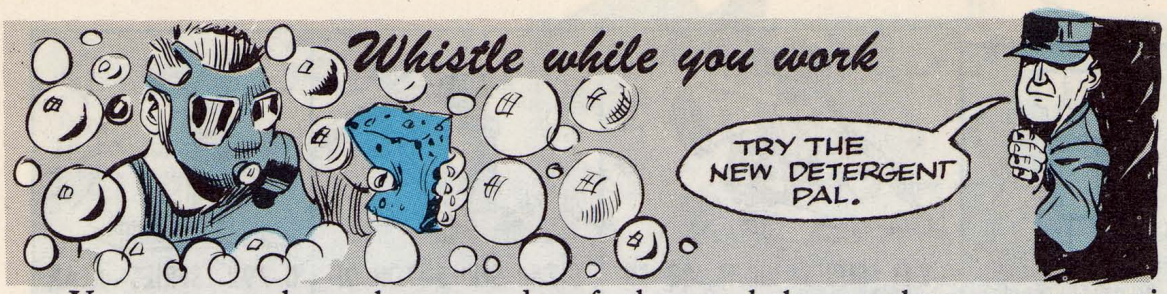
THEN TORQUE THE OUTER NUTS THAT HOLD THE OUTER WHEEL TO 450-500 FOOT-POUNDS

TO CHECK ON THE CAP NUT HOLDING THE INSIDE WHEEL WHEN BOTH WHEELS ARE MOUNTED—

FIRST



WHEN IT'S ALL DONE BOTH NUTS SHOULD BE TORQUED TO 450-500 FOOT POUNDS



You may not have the seven dwarfs there to help you clean your protective mask but Snow-White's there to lend a hand.

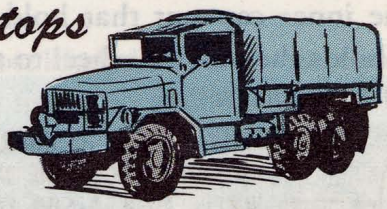
Cleaning the faceblank of your mask was once done only by water, plus a mild soap, plus elbow grease. You can now use a detergent to help do the job—that is, if it's one of the following: Magnus 1-DX made by Magnus Chemical Company, Inc., Garwood, New Jersey; Arctic Syntex 036 made by Colgate-Palmolive Company, 300 Park Avenue, New York 22, New York; Snow-White made by Lyk-Nu Company, Inc., New York, New York; or M-S-A Cleaner-Sanitizer made by Mine Safety Appliance Company, Pittsburgh 8, Pennsylvania.

If you're not quite sure of just how strong a solution you should have, it's suggested that you start out with a 5% solution and see how it cleans.

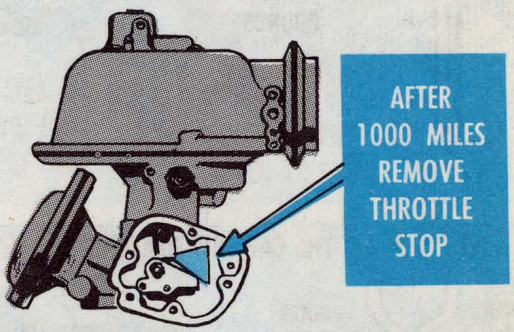
Only those detergents listed above should be used because they've been tested and found to be harmless to you and your mask so don't try substituting.

It might be a good idea to keep your list handy because new items that have been tested will be added from time to time.

Pull all stops



Memo to: All G742-Series Truck Drivers
From: Connie
Subject: Reminder



1. Some of your G742-series 2½-ton trucks coming out of storage might still have a throttle stop sitting in the governor housing of your carburetor.

2. Idea behind the stop is to keep your engine speeds in hand during the 1000-mile break-in only. After that, you check with Ordnance support on removing the stop and making any necessary governor adjustments . . . like it says in TM 9-8022, page 65.

3. Forget to pull out the stop and your engines will lug every time they meet up with a good sized hill or full load.

Connie

Getting the range

Did you M48-series tankers hear the newest scoop on your range finder?

No, you say? Well, pull up an empty gun tube and hear this.

The M13 (T46E1) and its case now reach your outfit under one stock number. Same goes for the M13A1 (T46E4).

In other words . . . FSN 1240-608-2062 is good for Range Finder M13A1 w/Case, Metal, Reusable. The old number—the one for the range finder alone—was FSN 1240-508-5166.

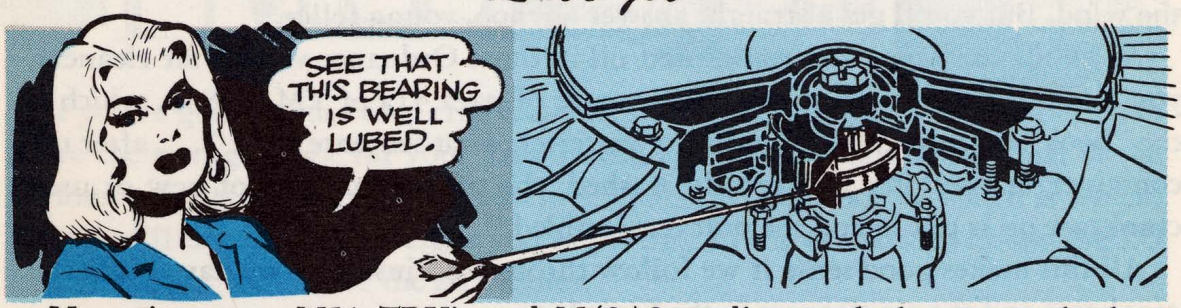
FSN 1240-608-2061 now gets you Range Finder M13 w/Case, Metal, Reusable. The number supersedes FSN 1240-344-4654, which was for the range finder alone. Once the range finder has been removed, your support will hold on to the case.

Maybe the man in support is short on cases. He oughta have one for each range finder he has in his stock . . . so do him a favor by letting him know about this number. FSN 1240-659-6526 is good for both the M13 and M13A1 range finder containers.

You might also tell the man that after he has a container for each range finder, his stock records want to show the FSN's for the range finder/container combination.

There's one more thing to remember. Your Ordnance officer is the boss man when it comes to requisitioning the ranger finder/container combination. So see him before you shoot in a 1546 issue slip.

Lube job



Next time your M51 TRV's and M48A2 medium tanks have to go back to support you might ask them to give that lower fan clutch bearing (FSN 2930-588-8571) the good eye see if it could use a bit of lubing.

If it's dry, ask them to put in enough Grease, Aircraft, (FSN 9150-223-4003) to pack the bearing about ¼-full. Seems the engine and muffler heat on the bearing causes the Grease to thin out and disappear.

Have 'em lift the seal with a knife to lube it . . . a little less is better than too much . . . the excess can get thrown up onto the clutch disks and they'll lock up.

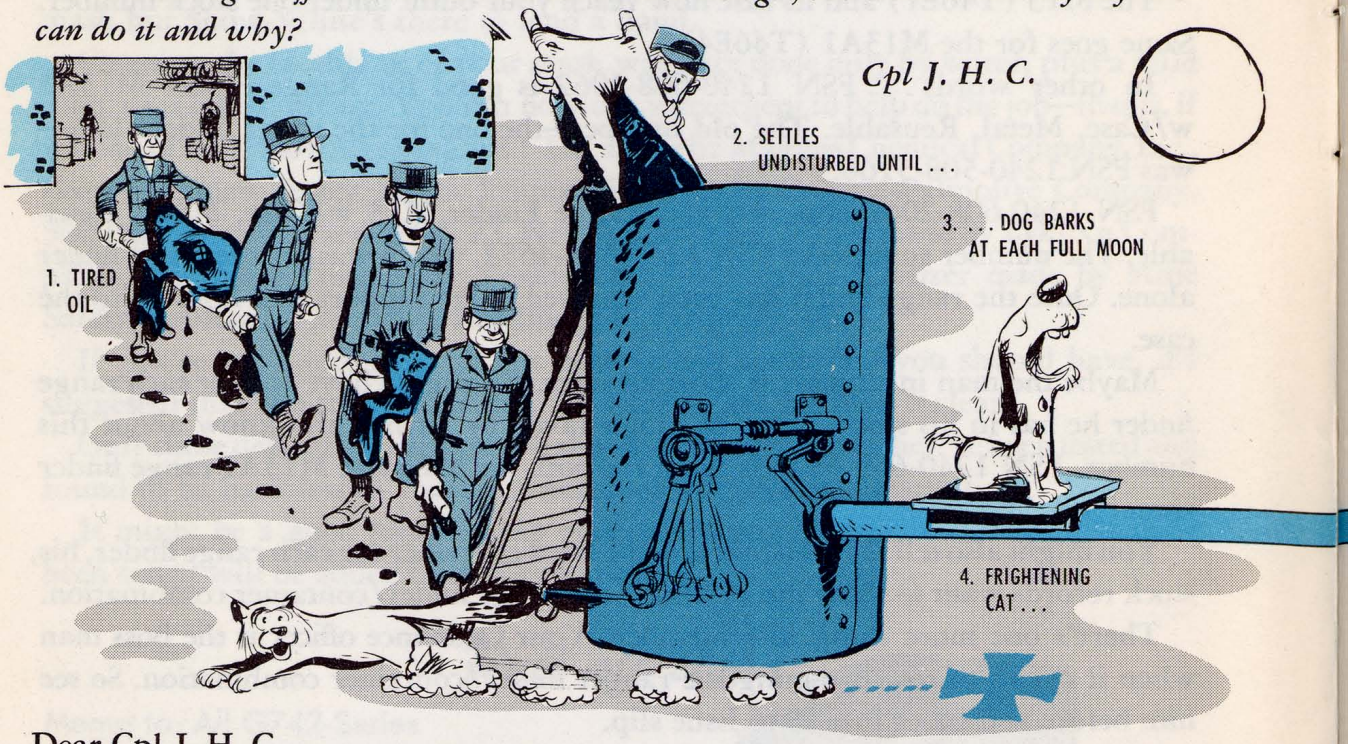
USED OIL

Dear Sgt Half-Mast,

I expect you old-timers to stick together, but maybe you'll give me a straight answer, anyhow. My question is that one of the old-timers here says we should use **used** *crankcase oil in air cleaners on our tactical wheeled and tracked vehicles.*

I can see right off that this would save much dough, but what authority says we can do it and why?

Cpl J. H. C.



Dear Cpl J. H. C.,

It's not a case of stick together—it's just a matter of huddled together, bare in the wind. But you'll get a straight answer anyhoo, young feller.

As to the authority for using used oil in those Ordnance vehicle air cleaners, you'll find it clear as day in the last sentence of para 41a of TM 9-2835, which is the "book" on lubrication of military materiel. That sentence says: ". . . after the container or the filter is carefully washed, the proper quantity of new or used crankcase oil is put in and the unit reassembled."

All this makes good sense if we follow through on just why we have oil in the crankcase and the air cleaners in the first place.

Crankcase oil has four main jobs to do: clean, seal, cool, and slick. As it does its cleaning job, it picks up dirt and particles which louse up its job of lubricating closely machined bearing surfaces. And as it does its jobs of cooling and sealing, it is altered by heat, crankcase dilution (due to gas or condensation), and a build-up of acids and salts from combustion, until you reach the point where you might say it does almost as much harm as it does good. That's why you drain the crankcase oil—because it has become fouled with dirt or metal particles, other liquids

USED OIL USE

Dear Sgt Half-Mast,

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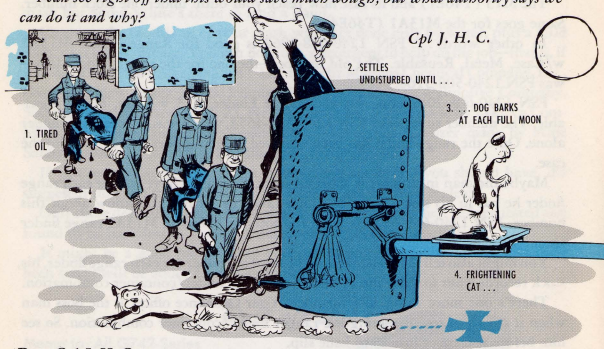

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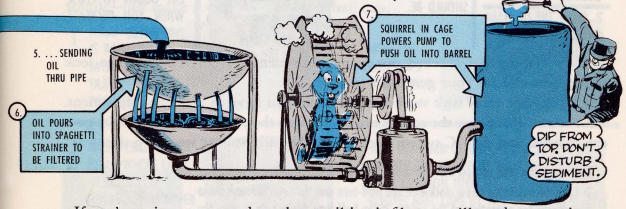
Now, you have oil in the air cleaners for another entirely different reason. In either the oil-wetted or oil-bath types of air cleaners, the oil is just a liquid substance which provides a continuous adhesive-type surface which grounds airborne dirt particles like flies on flypaper. There are a lot of other liquids that would do the job, but oil is better because you have it around, it doesn't evaporate too quickly, it's fairly thick, it won't slosh around too badly, and if some of it gets sucked into the fuel mixture it'll burn off. **It has nothing to do with lubrication.**

So, you put oil in those two different places for two different reasons. And the things that made you pull the oil from the crankcase—because it wasn't doing a good job there—have nothing at all to do with it being able to do a good job for you in the air cleaner.

Like you say, this will sure save dough. But while you're at it, let me give you some ideas to make it a little better—and easier on yourself.



If you're going to use used crankcase oil in air filters you'll need to store it, so make the storage work for you. You'll need a container marked for each of the various weights of crankcase oil you use. That way you'll know which is which, since you'll use the same weight you're putting in the crankcase, unless the LO gives a specific weight for the air cleaner.

Next, if you can, rig a spare filter unit that the used oil can gravity-feed through into the storage container.

With or without the filter, let the containers stand and don't rock the boat. Let any sediment and such stuff settle to the bottom. Then that used-crankcase-money-saving-air-cleaner oil is ready for duty.

But don't pour, tip, or otherwise drain it out. That oil just shouts, like ol' Half-Mast: ' Well, I'll be dipped . . ."

(From the top down, that is).

Half-Mast

USE

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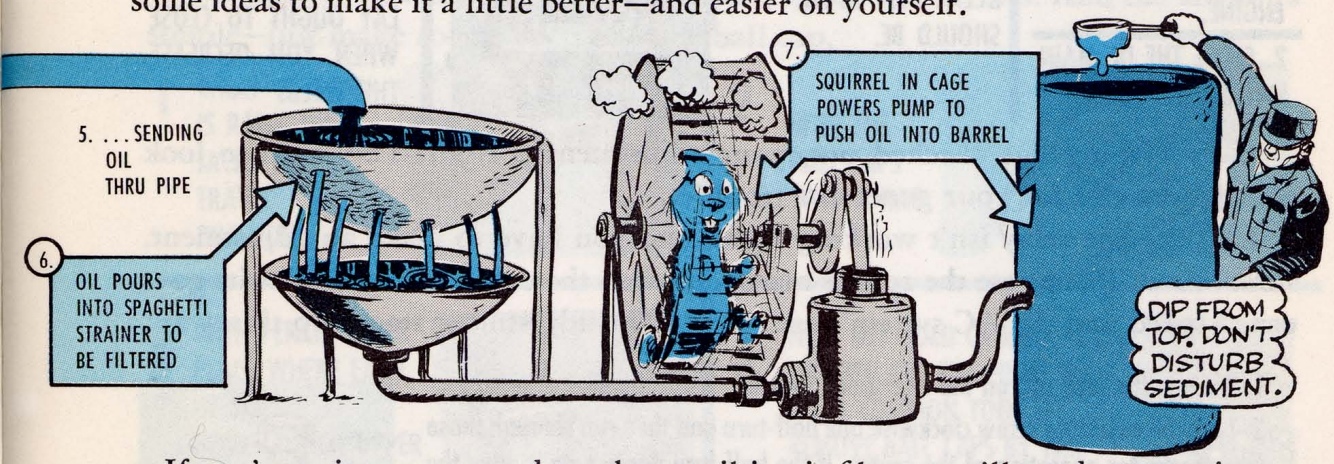

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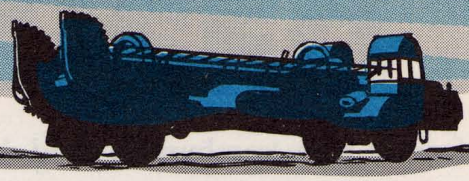
MISSILE BLASTS

A SWITCH IN TIME



So your M2 Corporal erector generator is giving you a hard time—it just won't come to a halt when the "pot" handle is moved to the neutral position. You're sure the overspeed switch is to blame, but you don't know how to adjust the switch.

Well now . . . pull up a spare drive wheel and have a look-see and listen-to. You can have the adjustment down pat in no time.

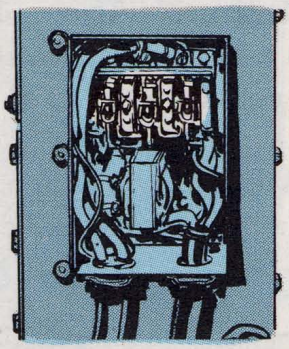
Once you've removed the power unit cover, the first thing you want to do is make sure that the vacuum line and all electrical leads are good and secure.

Then you see if the switch is operating right. And that's done like so:

1. START THE ERECTOR ENGINE.

2. CLOSE THE DC MAIN SWITCH.

3. TAKE THE COVER OFF THE OVERSPEED RELAY AND SEE IF THE RELAY IS OPEN. IT SHOULD BE.



4. REDUCE THE ENGINE SPEED QUICKLY BY MOVING THE HAND THROTTLE TO IDLE.

5. THE OVERSPEED RELAY OUGHT TO CLOSE WHEN YOU DECREASE THE SPEED.

If everything has checked out, your adjustment is right. You want to look somewhere else for your generator troubles.

Let's say the relay isn't working right, and you have to make an adjustment. First . . . we'll suppose the relay's not open when the engine's running at its governed speed and the AC system's energized. The adjustment stacks up thisaway:

1. Loosen the lock nut on the overspeed switch.

2. Turn the adjusting screw clockwise one half-turn and then run through those five checks for operation of the switch. If the half-turn doesn't do it, give the adjusting screw another half turn. Do this until the relay does stay open while the engine's running at governed speed. Then tighten the lock nut.

Now . . . if'n the relay doesn't close when the engine speed is cut, you do this:

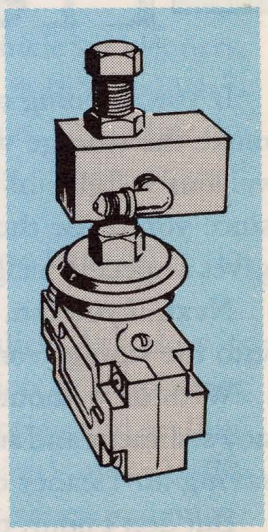
1. Loosen the lock nut on the overspeed switch.

2. Turn the adjusting screw counterclockwise one-half turn and run through your operation check. If you still don't have the right adjustment, keep making one-half turns—followed by an operation check each time—until the relay does close when the engine speed is reduced.

3. Then tighten the lock nut.

You should be in business.

And . . . Remember . . . You can find scoop on the generator in TM 9-5049.

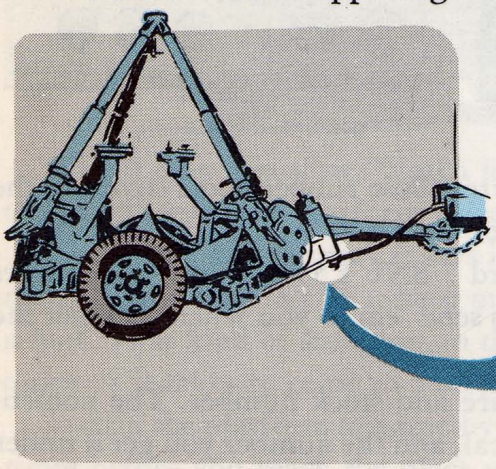


A FILING SYSTEM

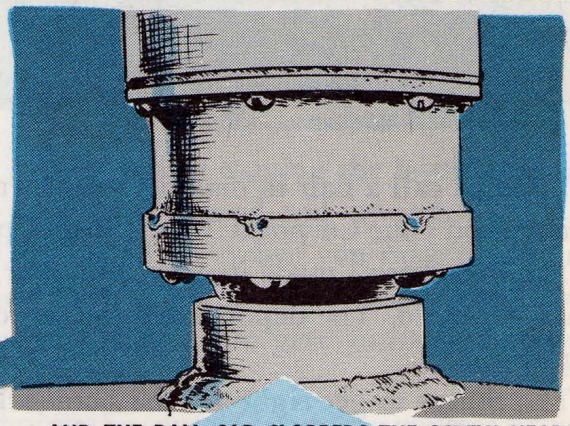
How about your Corporal outfit?

You giving the guy in supply a hard time trying to keep you supplied with those round-head screws that go into the packing retainer on the outrigger jacks of your M27 launcher?

You know what's happening—



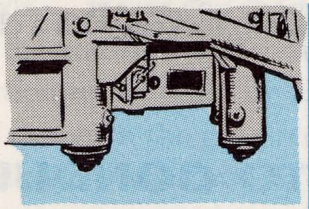
YOU RAISE THE JACKS INTO TRAVEL POSITION...



...AND THE BALL CAP CLOBBERS THE SCREW HEADS

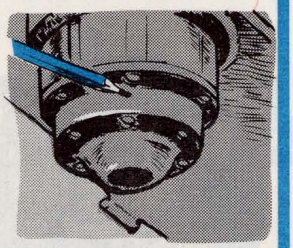
The answer you need is something that'll save those screws. And the answer's simple—just make room for 'em on the ball cap.

1 WHAT YOU DO IS RAISE THE JACKS TO TRAVEL POSITION.

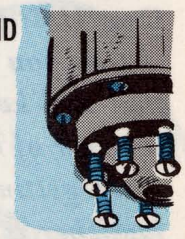


2 WIPE THE BALL CAPS WITH A RAG.

3 WITH PENCIL, MARK PLACE WHERE EACH OF SIX SCREW HEADS TOUCH UPPER EDGE OF BALL CAP.



4 NEXT GET HOLD OF HALF ROUND SMOOTH CUT FILE FROM YOUR NO. 1 COMMON TOOL SET. REMOVE BALL CAPS BY TAKING OUT SCREWS THAT HOLD CAPS TO MIDDLE SLEEVE.



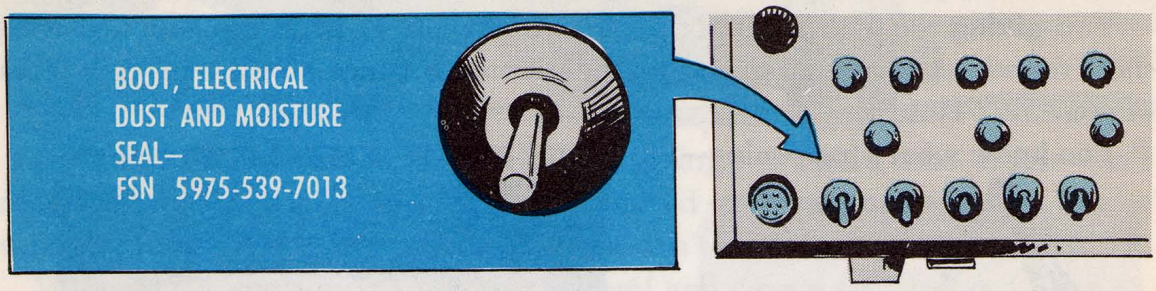
5 NOW, WITH EDGE OF FILE, MAKE A NOTCH ON MARKS YOU PENCILLED ON THE EDGE OF THE CAP.

6 GIVE FILE A SLIGHT TWIST AND GO TO WORK ON EACH NOTCH WITH ROUND SIDE OF FILE.

Or you might want to scrounge a round, smooth cut file for the same job.

Either way, make the notches deep enough for the ball cap to clear the screws. Be sure to allow a little leeway because there's some play in the middle sleeve.

CORPORAL PUNISHMENT



You can call a halt to making your own after those rubber boots covering the switches on your Corporal Type II firing panel wear out.

The boot hasn't made its way into your Ord 7 SNL Y55 yet, but you can get what you need. The depots have the word to send 'em to you when they get the requisition.

The things to get right are the nomenclature and stock number. The nomenclature is Boot, Electrical Dust and Moisture Seal, and the number you get it under is FSN 5975-539-7013.

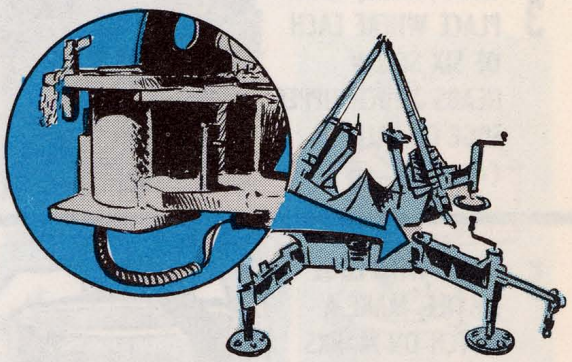
By the incidentally . . . keep checking the caps and the press-to-test lamps. Soon's the caps start looking like they're heading for the last roundup, get new ones. And keep cleaning the press-to-test lamp sockets with a clean rag so's they'll stay in good shape.

CAN'T DO IT TO CONDUIT

Dear Half-Mast,

Can you tell me if there's an MWO that will keep the electrical conduits at the rear of our M27 Corporal launcher from getting all chewed up while the launcher is being emplaced?

MSgt A. W.

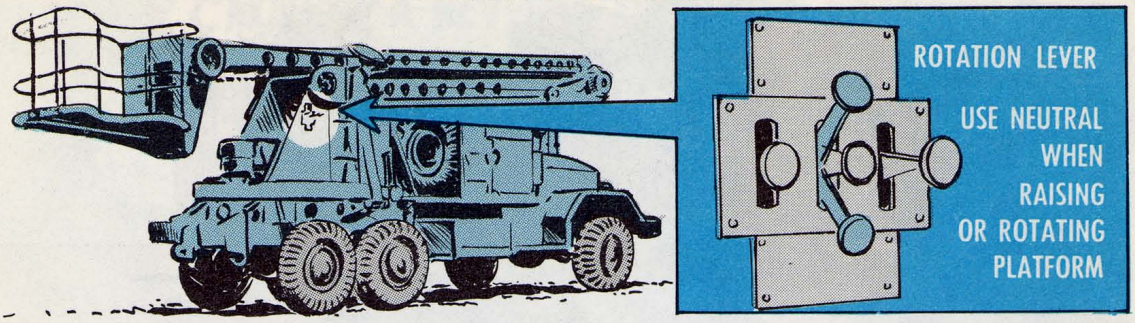


Dear Sergeant A. W.,

I'm afraid not. There had been some talk about relocating the conduits, but it's died out. The only thing you can do is be extra careful when emplacing the launcher. And if the conduits do get beat up, call on your support unit for help.

Half-Mast

WHOA THAR



Take it easy. Go slow. Watch it . . . when you're moving the levers that send the M280 servicing platform up and down and around and around.

Like f'rinstance the way it says in TM 9-5058-12—when you raise the maintenance platform, don't let it keep moving until the limit valve causes it to slam to a halt. That kind of stopping on the edge of a coin can give you a shot valve as quick as it takes to come to a screeching halt.

So coax the platform to a stop by slipping the control lever into neutral a couple times before you reach the place where the limit valve takes over.

Speaking of taking it easy . . . it's also a good idea to get to know that part of TM 9-5058-12 that talks about rotating the platform.

In a couple words. . . it says you change direction by bringing the rotation lever to neutral first, so the platform will come to a complete stop. What you don't do is go from one direction to the other by zipping right through neutral.

That could jolt things in the gear reduction box enough to bust the shear pin in the pinion. And then's when you have to yell for your support unit.

CLEAN THE VENTS, GENTS

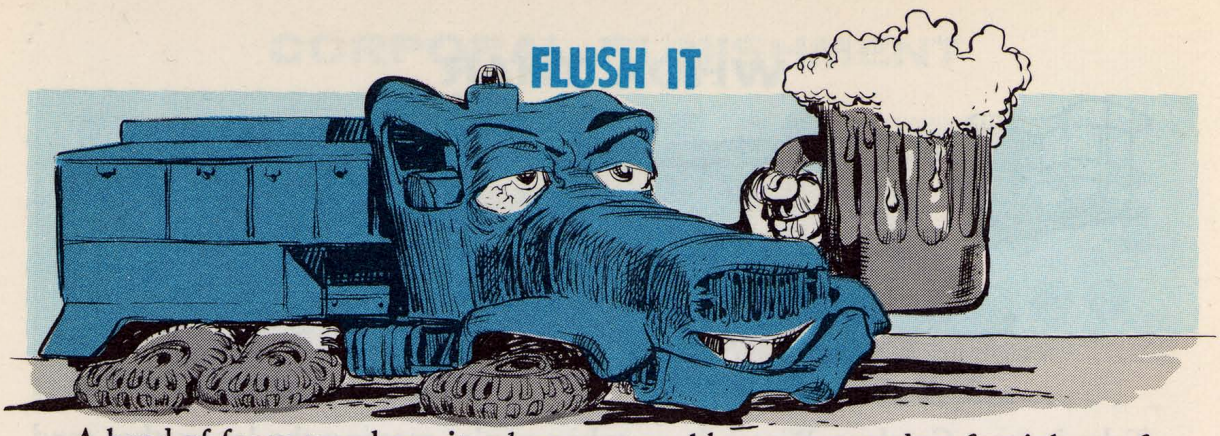
You been running into battered seals in the speed-decreaser gear assemblies on your Corporal erector?

Chances are you've got clogged vent lines on the assemblies.

What happens is that those lines get plugged with grease so the pressure hasn't got anyplace to go. It builds up and gets out of the box by blowing the seals.

It all boils down to it being a smart idea to run a fine piece of wire—the holes are $\frac{1}{32}$-in dia—through the vents now and again to work loose any grease that may be caked in 'em.

FLUSH IT



A head of foam may have its place on a cool brew or may do a fine job at a fire, but it sure can play rough with the innards on fire trucks like the Hesse Carriage Model HC26 pumper.

Seems that this foam concentrate liquid also does a fine job of sabotaging the primer pump by corroding the float shaft in the main pump chamber. With the float locked in place, the solenoid valves won't work. So, the liquid floods the primer pump body and the vanes aren't able to retract.

Result: The pump is ruined.

You can have your pump and use it, too, if you'll always, but always, flush the pumping system with clear water after pumping operations involving use of foam.

OPEN SEASON FOR DUCTS

Dear Sgt Dozer,

Our aviation outfit has some Herman Nelson 400,000 BTU preheaters. These are the responsibility of the Engineers. But, what about the ducts? What tech service has the responsibility for them—are they Engineer? If they are, what's the FSN and how do we get them?

SFC D. C.

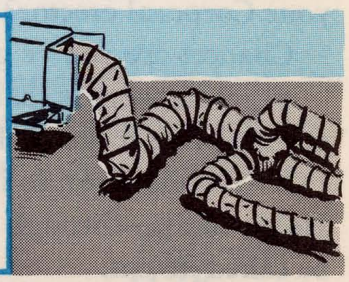
Dear SFC D. C.,

Yep, those ducts belong to the Engineers—But they're non-stocked items. You can buy them locally or requisition them through your regular Engineer repair parts supply channels.

Here's what you want:

Sgt Dozer

Manufacturer	Part Nr.	Item Description
American Air Filter Co., Inc. (Code 01767)	TD423-A TD424	Duct Assembly, 6-in Set of 3—$96.99 Duct Assembly, 12-in Set of 2—$105.20



You can be a winner without even playing a hand—and a flush'll do it.

It's real easy if you've got a Cummins engine with a pressure-time fuel injection system. Let your direct support unit sit in for you and give your Cummins a reverse flush every 400 to 500 hours of operation.

It's a good deal. The reverse flush will remove the carbon that's caked on the tip of the fuel injector orifices. And, at the same time it'll lengthen the time between your PM sessions when you have to remove the injectors to clean 'em.

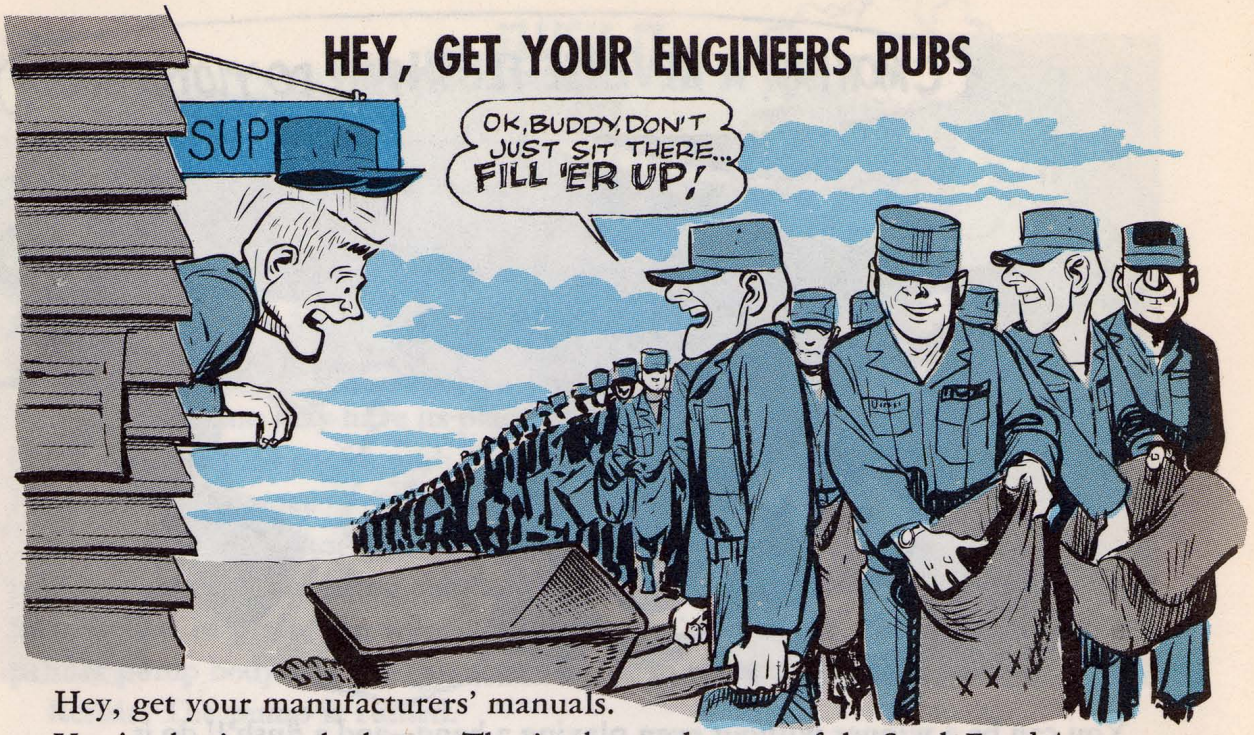
NEED A HAND?

RA or National Guard outfits that rate spanking new equipment like the Walter 1500 GPM Fire Trucks, purchased under PO 88-F-41285-27, can get all the help they need just by sounding off.

The companies that make the rigs have technicians available to assist units with the installation, operation, and maintenance of their equipment. They'll also help out with the training of personnel.

Your outfit can get this assistance by writing, phoning, or teletyping the Engineer Regional Maintenance Office serving your area as listed in AR 750-512. You'll want to give them this info: type of equipment; government purchase order or contract number; type of assistance needed; length of time you'll need extra help; name and title of the individual the technician is to report to; and the security clearance required, if any.

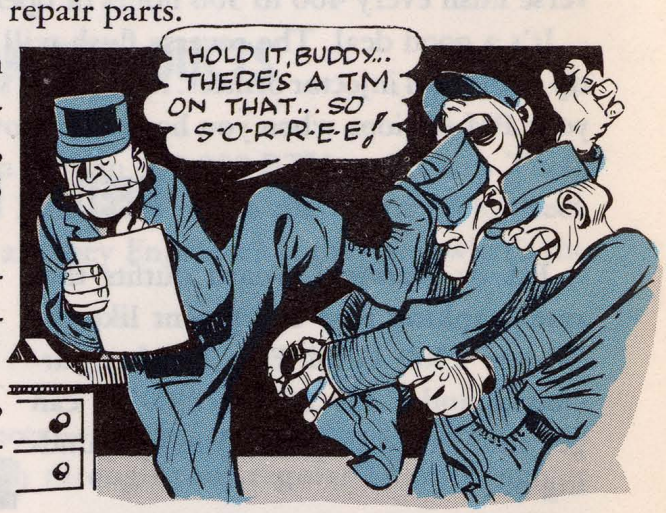
HEY, GET YOUR ENGINEERS PUBS



Hey, get your manufacturers' manuals.

Yessir, they're on the house. They've been taken out of the Stock Fund Account and you can get them for free now. You still fill out your DA Form 1546 same as before and send it through repair parts channels. But, because no fund citation is needed you order pubs separately from repair parts.

Wait! Before you submit a Form 1546, you want to check out DA Pamphlet 310-4 (Index of TM's, SB's, LO's, and MWO's) DA Pamphlet 310-25 (Index of Engineer Supply Manuals) and the Weekly AG Publications Bulletin to make sure a DA pub isn't available.



If a TM or other DA pub is available, then you shouldn't need a manufacturers' manual.

If you run into a snag or you need more info on this, you can write to the Commanding General, U. S. A. Engineer Maintenance Center, P. O. Box 119, Columbus 16, Ohio, Attn: EMCDL.

They'll steer you in the right direction.

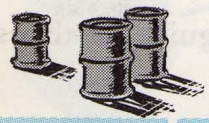
Incidentally, when you requisition Manufacturers' Equipment Manuals, be sure you include the make, model and serial numbers of the equipment and major components. You'll also want to tell 'em the type of pub you need—operation, maintenance or spare parts list.

Give Your Rotary Compressors . . .

THE RIGHT LUBRICANT

'Course, you know it's mighty important to use the right oil in your Engineer rotary compressor.

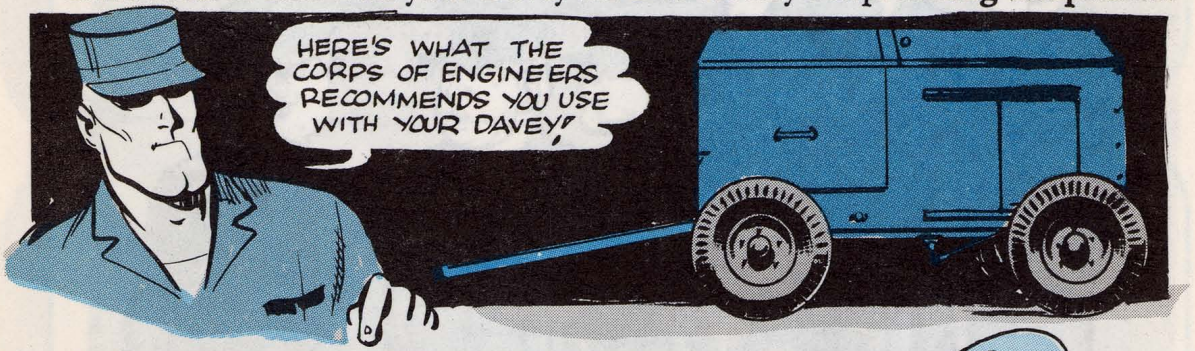
As a f'rinstance, the compressor oil you use in the Jaeger Rotary Compressor Model Eng 600, is a non-detergent oil that meets the standards of MIL-L-15016A, like so:



JAEGER ROTARY COMPRESSOR MODEL ENG-600 LUBRICATING OILS

Temperature Range	Weight	Symbol	FSN—5 Gal Drum	FSN—55 Gal Drum
Above 32°F	SAE 30	2190	9150-231-6639 (QM)	9150-231-6641 (QM)
40° to —10°F	SAE 20	2110	9150-223-4137 (QM)	9150-235-5578 (QM)
0° to —65°F	SAE 10	2075	9150-235-5571 (QM)	9150-235-5573 (QM)

Same kind of deal with your Davey RPC-15 Rotary-reciprocating compressor.



DAVEY RPC-15 ROTARY-RECIPROCATING COMPRESSOR LUBRICATING OILS

Temperature Range	Lubricant	FSN
Above 32°F	Shell Tellus 72	*
40° to —10°F	Shell Tellus 41	*
0° to —65°F	Shell Aeroshell 1AC	9150-281-6191

*You get the 72 and 41 by local purchase through your direct support unit.

You'll want to check this out for your Jaeger in TM 5-4310-212-10 (15 Jun 59) and LO 5-4310-212-20-1 and -2 (27 May 59), and for your Davey in TM 5-4310-214-10 (24 Jul 59) and LO 5-4310-214-20.

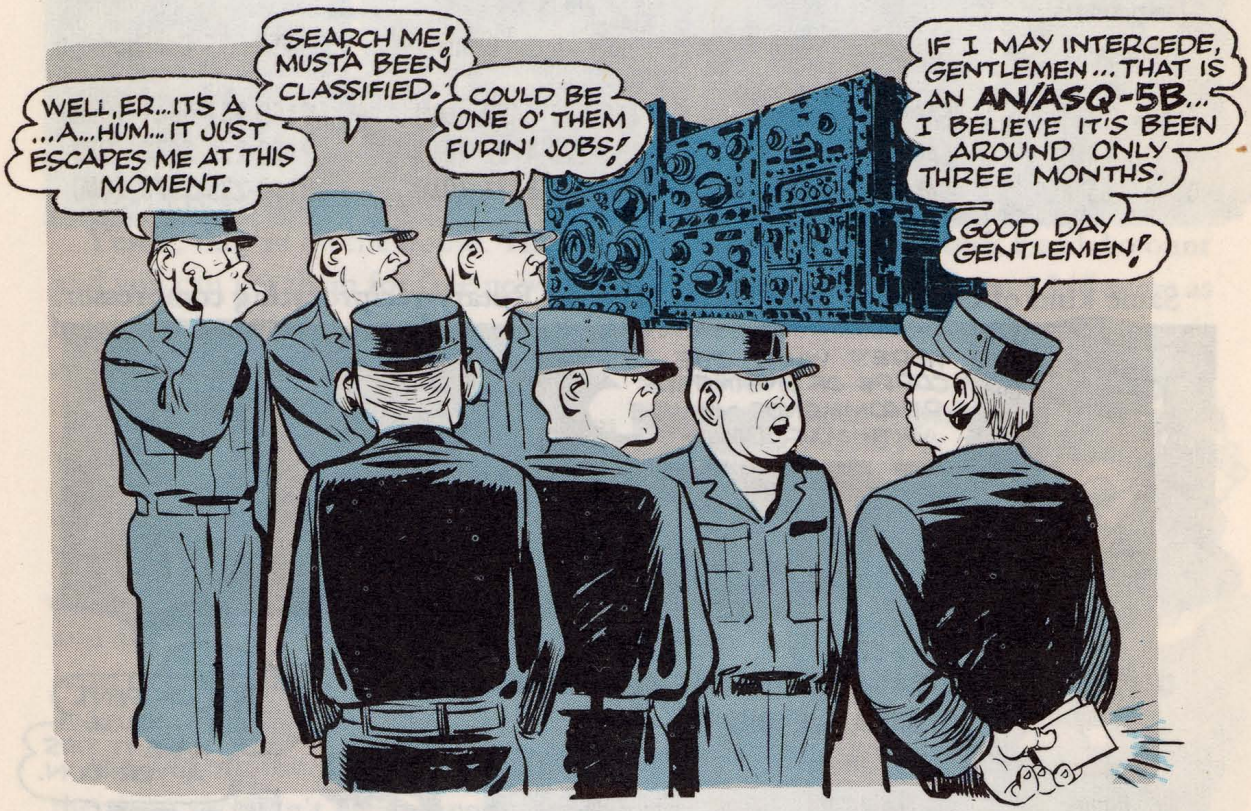
THE "AN"

Handy guide. Ready reference. Thumbnail sketch. Wallet-size card.

It helps to have something like that handy comes time for a quick identification of electronic gear that sports an "AN" nomenclature.

Oh sure, most guys can read the code on the gear that they work with day after day and night after night. But sometimes along comes a lash-up whose title sets up a little static in a man's memory.

Which means, of course, that it's time to check this pocket guide for that sort of thing.



The Joint Communication-Electronic Nomenclature System (AN) was set up so that its indicators would show at a quick glance some key facts about an item.

Like f'rinstance: whether an item is a set—or a component—where it's used—what it's used with—what kind of equipment it is—and so on.

Just one note: The "AN" is no longer limited to Army-Navy usage. It simply shows that the equipment is part of the nomenclature system that covers not only the Army and Navy, but also the U. S. Air Force and the Canadian armed forces. F'rinstance: an electronic item may be procured by the Army—but used by the Navy. Yet it keeps the same nomenclature no matter which service has it.

THE "AN" STORY

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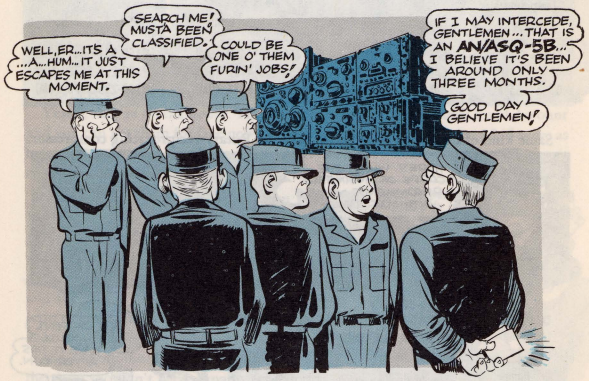

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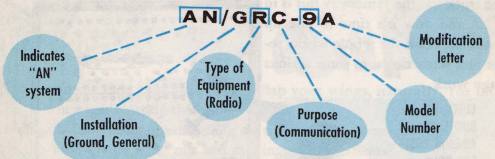
"AN" NOMENCLATURE SYSTEM

1. Here's an example for a Signal Radio Set:



2. Sample of a component used with a particular set:
RT-77/GRC-9 (Receiver-Transmitter used with an AN/GRC-9).

3. Sample of a component used with two or more vehicular radio sets:
Control Box C-375/VRC.

If you're interested in extra information about this system, latch on to a copy of MIL-STD-196, "Joint Electronics Type Designation System."

FOLD ON THIS LINE

EQUIPMENT INDICATOR LETTERS

1ST LETTER (INSTALLATION)	2ND LETTER (TYPE OR EQUIPMENT)	3RD LETTER (PURPOSE)
A Airborne	A Invisible light, heat radiation	A Auxiliary assemblies
B Underwater	B Pigeon	B Bombing
C Air Transportable	C Carrier (wire)	C Communication
D Pilotless carrier	D Radiac	D Direction Finding
E Fixed	F Photographic	G Gun or searchlight directing
G Ground, general	G Telegraph or teletype (wire)	H Recording
K Amphibious	I Interphone and public address	L Searchlight control
M Ground mobile	K Telemetering	M Maintenance and test assemblies
P Pack or portable	L Countermeasures	N Navigational aids
S Water surface craft	M Meteorological	P Reproducing
T Ground, transportable	N Sound in air	Q Special or combination of types
U General utility	P Radar	R Receiving
V Ground, vehicular	Q Sonar	S Detecting and/or range bearing
	R Radio	T Transmitting
	S Special Types	W Remote control
	T Telephone (wire)	X Identification and recognition
	V Visual	
	X Facsimile or television	

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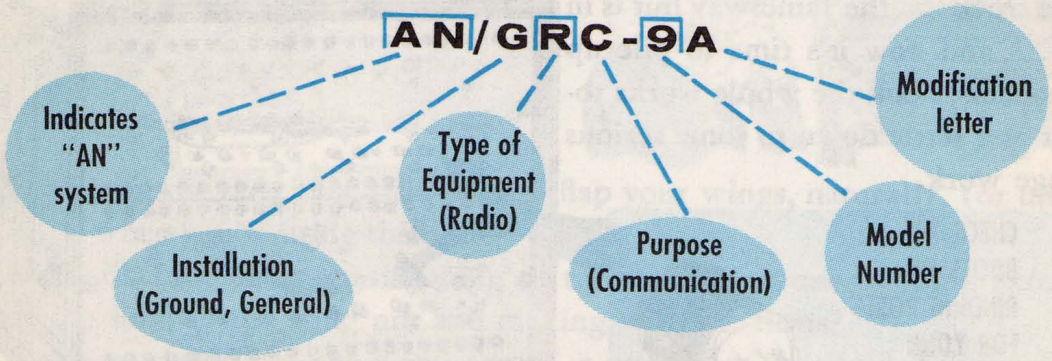

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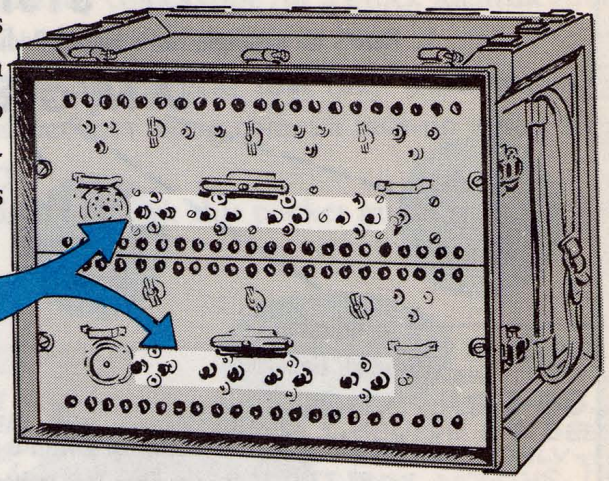
LET'S COMMUNICATE

HOT POST

Everything's just about ready.

The AN/TCC-4 or AN/TCC-20 is off the truck . . . the Jamesway hut is in place . . . and now it's time to pile up the modems, hook the whole works together and settle down to some serious message work.



CHECK THE BOOTS ON BINDING POSTS FOR YOUR PROTECTION FROM SHOCK

Which brings us to the binding posts on the TH-15/T. The ones on Channel Units A and B (Telegraph Modems TH-17/T and TH-16/T).

These are the kind that you push in so's to slip the connecting wires in place. Just a little push, that's all. BUT—that little push can give any operator a rude shock if your equipment isn't grounded.

So how? So every binding post on those positions is wrapped nice and neat in a rubber insulator. Sort of a little boot designed to absorb the shock.

But, like any booties, they can get deteriorated, loose, worn, broken and maybe lost. And a post without its insulating boot is a trifle too hot to handle.

So-o-o-o. Check the boots on your modems for deterioration, etc. If any are in bad shape or missing, there's only one thing to do. But wait a minute! Those rubber insulators are **not** separate items.

Right. An operator has to order more than he needs to get what he needs. In this case, he'll have to grab hold of a whole new binding post.

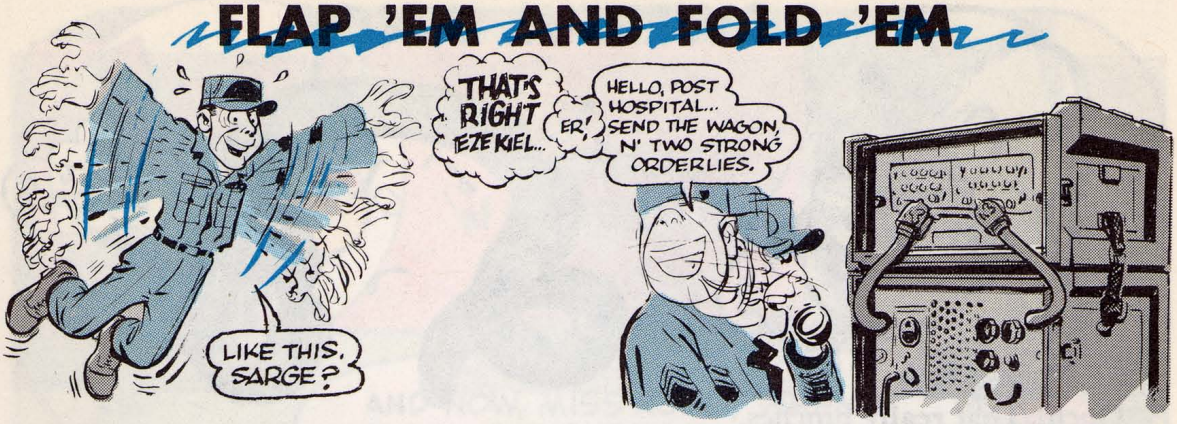
That means you'll be needing:

POST, BINDING: push type
0.093″ max wire opening
Signal Corps Stock No 3Z741-42.2
FSN 5940-272-1444.

But, until it comes along, sort of be sure there's some kind of insulation 'twixt your digit and the post when you push on it to slip a wire in place. A piece of rubber, plastic, etc.

While you're binding away at your posts, too, might be a good idea to check on the condition of all the boots. Could be that the terminal unit may need a few more to boot.

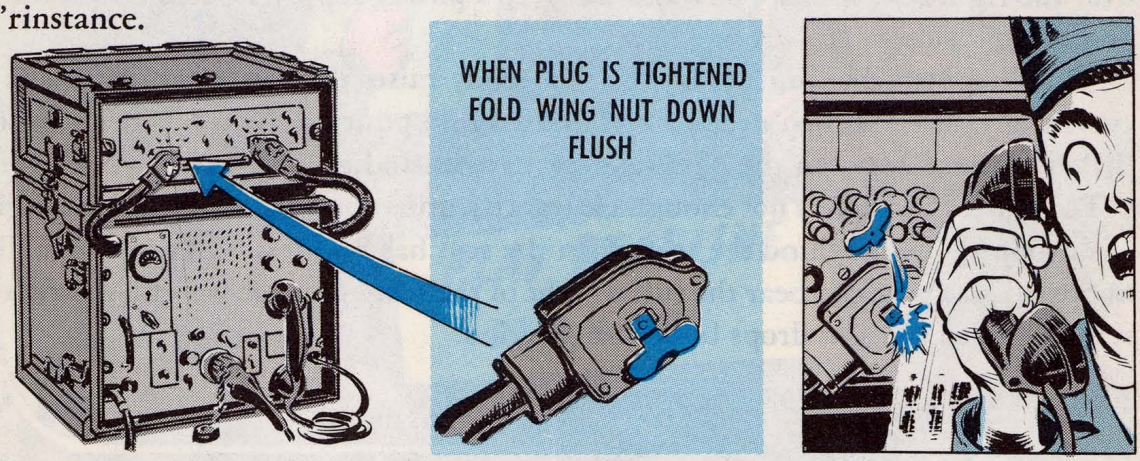
FLAP 'EM AND FOLD 'EM



Just about the only time you want to flap your wings, naturally, (or unnaturally) is when you're using them.

After all, how else are you going to tighten up a connector plug except by grabbing hold of the wing nut and making with the turns?

But once things are snug and secure, a wing that isn't folded flush with its connector is very likely to get clipped. People and things bumping up against it, f'rinstance.



Here's the deal: the wing-nut attachment on a connector raises up to a vertical position when in use. But that's as far as it goes. It can't bend over backward.

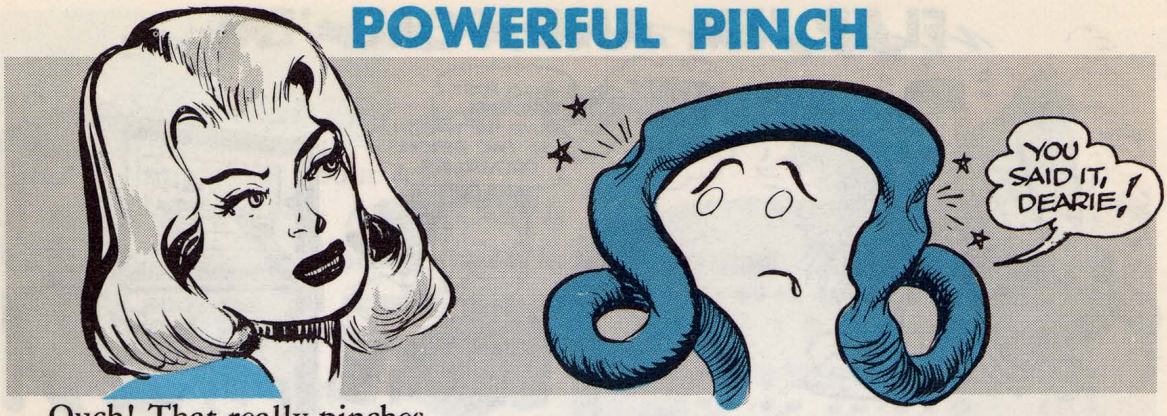
Forcing it any further back will break its back. Bad. Bad because it'll be next to impossible then to screw the plug connector into position.

Worse still because you can't fix things up just by replacing the wing nut attachment. That wing nut is not a replaceable part. You have to latch on to an entire new connector.

Which means an otherwise OK connector has to be tossed out only because its wing nut is busted. And when an 18- or 24-pin plug is thrown on the pile just because somebody forgot to fold its wings, well—unpleasant things will start popping.

Every time you're finished with a wing nut—on any of a dozen or more different kinds of connectors—just fold 'em in. Nice and flush. It's a small enough chore, but one that will keep your equipment on the line.

POWERFUL PINCH



Ouch! That really pinches.

So what's the man talking about? Who's getting pinched? Connie?

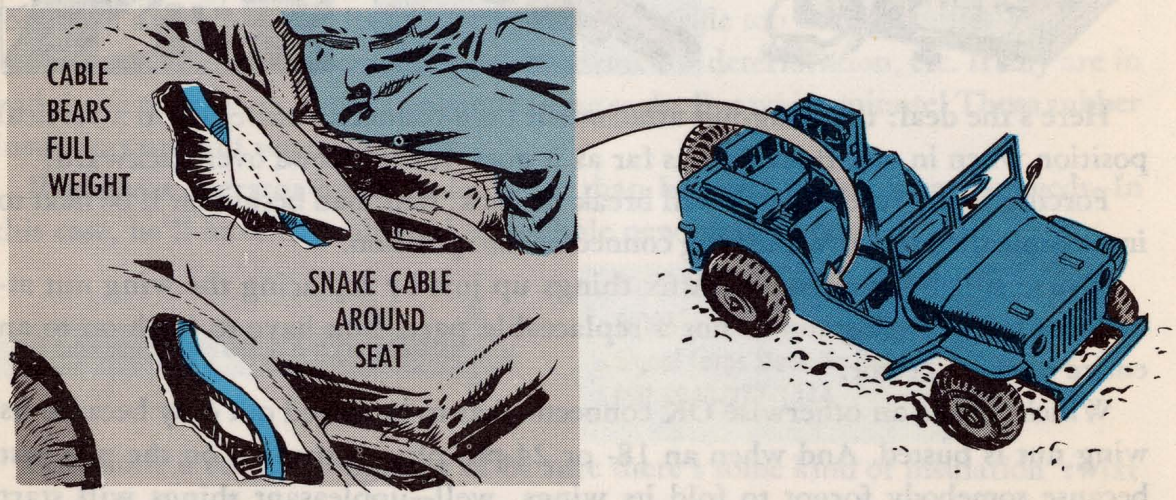
Heh, Heh.

No, it's the power cable. The power cable that connects a Jeep-mounted AN/GRC-9 power supply with the vehicle power terminal box.

That cable stretches between the Vibrator-Power Supply PE-237 (mounted over the right rear wheel well) and the Jeep's power supply located up forward on the right side.

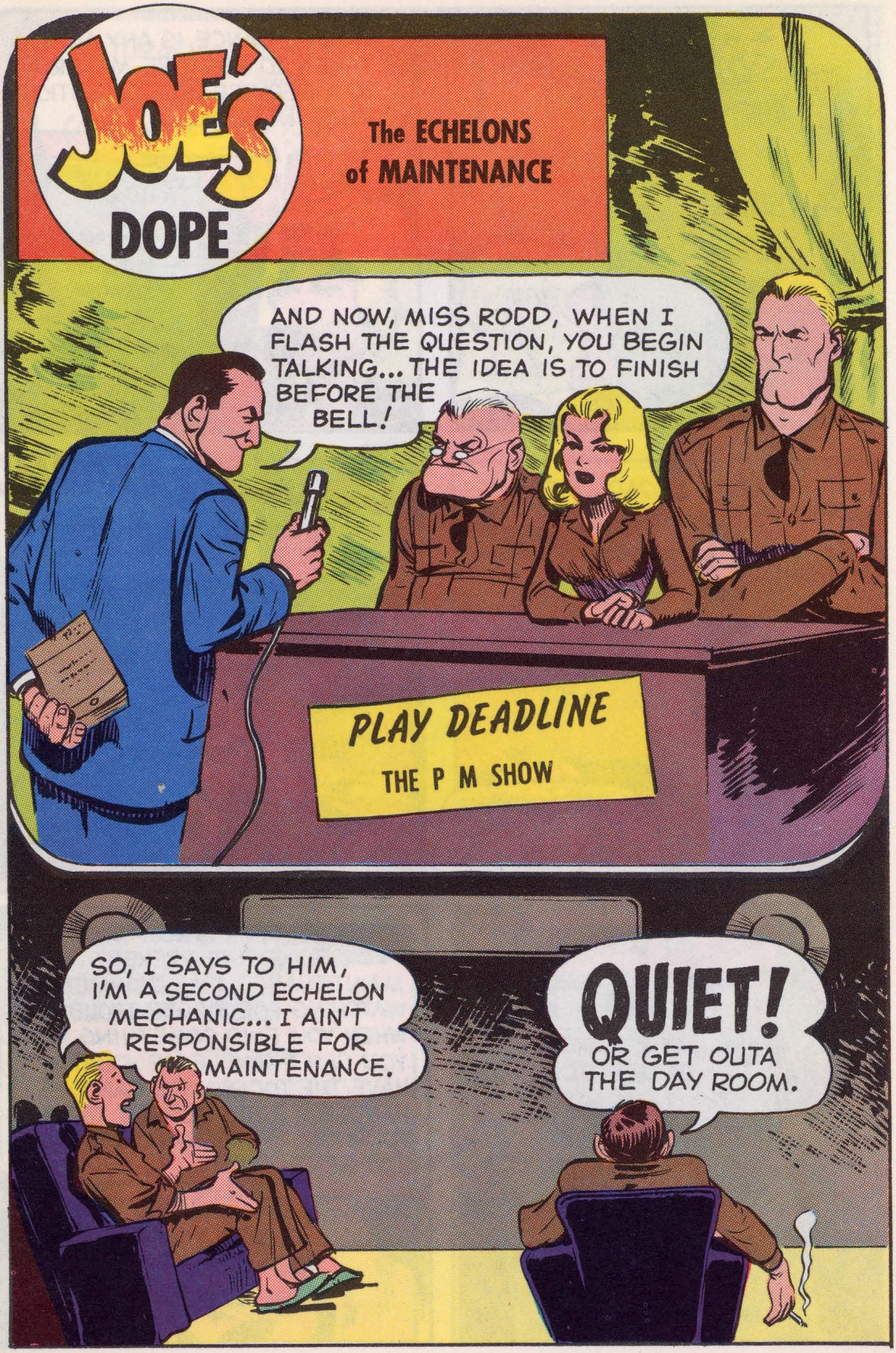
What happens that pinches is this: Somebody raises the passenger seat for this reason or that—and then drops it back down into position. Now, there's mighty little clearance between the passenger seat frame and the right rear wheel well.

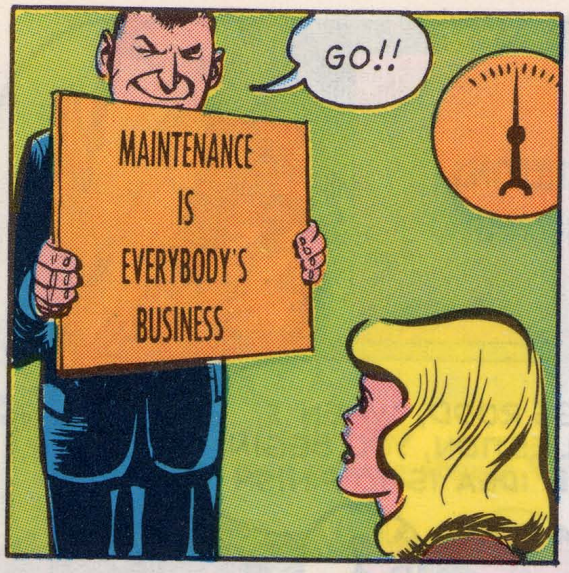
For one thing, there's not enough clearance for that power cable. So if the cable has dropped down behind the seat when the seat has been raised (which usually happens), it's going to bear the full weight of the seat—plus the weight of the passenger—when the seat drops back into position.

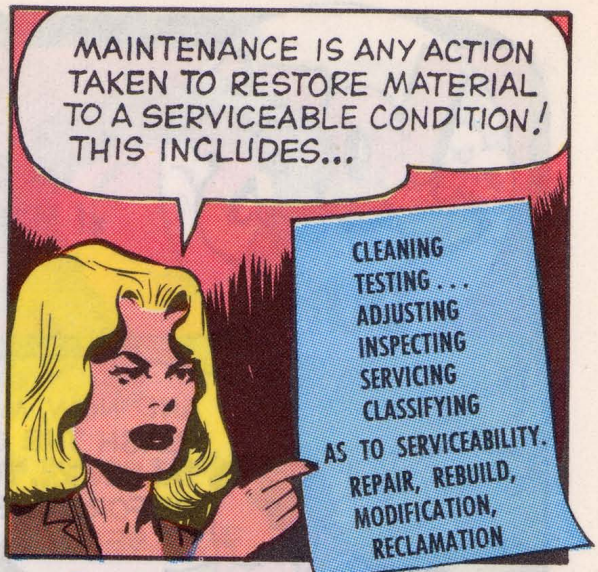


Next time you climb into the passenger seat of a Jeep which carries an ANGRY 9, check the power cable before you sit down. Snake it around so it doesn't get pinched 'twixt seat frame and wheel well.

Without a power cable—no power. Without power—a real pinch.

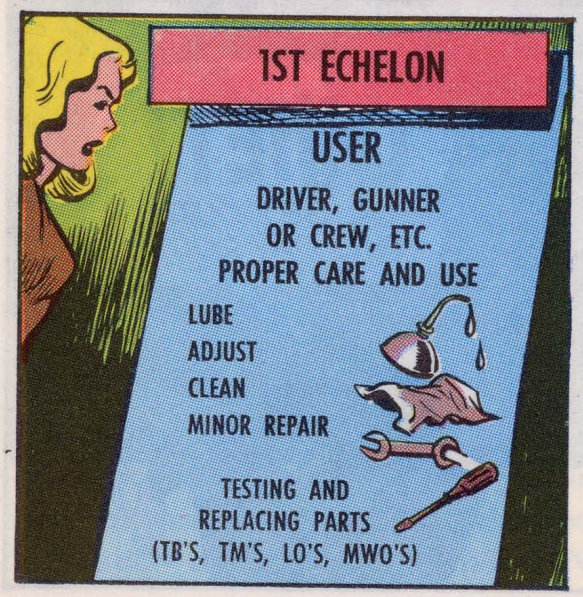

JOE'S DOPE
The ECHELONS of MAINTENANCE
AND NOW, MISS RODD, WHEN I FLASH THE QUESTION, YOU BEGIN TALKING... THE IDEA IS TO FINISH BEFORE THE BELL!
PLAY DEADLINE
THE P M SHOW
SO, I SAYS TO HIM, I'M A SECOND ECHELON MECHANIC... I AIN'T RESPONSIBLE FOR MAINTENANCE.
QUIET! OR GET OUTA THE DAY ROOM.


GO!!
MAINTENANCE IS EVERYBODY'S BUSINESS


MAINTENANCE IS ANY ACTION TAKEN TO RESTORE MATERIAL TO A SERVICEABLE CONDITION! THIS INCLUDES...
CLEANING
TESTING...
ADJUSTING
INSPECTING
SERVICING
CLASSIFYING
AS TO SERVICEABILITY.
REPAIR, REBUILD, MODIFICATION, RECLAMATION

THERE ARE 3 BROAD CATEGORIES OF MAINTENANCE...
ORGANIZATIONAL
FIELD
DEPOT
...AND THEY'RE BROKEN DOWN INTO 5 ECHELONS

ORGANIZATIONAL
MAINTENANCE IS DIVIDED INTO...
FIRST ECHELON
SECOND ECHELON

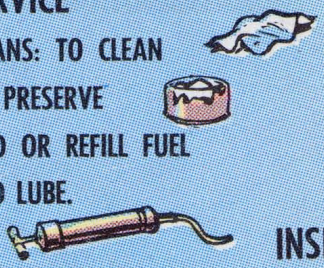

1ST ECHELON
USER
DRIVER, GUNNER OR CREW, ETC.
PROPER CARE AND USE
LUBE
ADJUST
CLEAN
MINOR REPAIR
TESTING AND REPLACING PARTS
(TB'S, TM'S, LO'S, MWO'S)

FIRST ECHELON IS RESPONSIBLE FOR DOING THE PREVENTIVE MAINTENANCE ON EQUIPMENT, WATCHING FOR BIGGER TROUBLES. WHEN YOU FIND SOMETHING YOU CAN'T HANDLE (IF YOU DON'T HAVE THE TOOLS... YOU CAN'T HANDLE IT) YOU REPORT IT TO YOUR UNIT'S MECHANICS. THEY'RE 2ND ECHELON.

NATURALLY YOU HAVE YOUR MAINTENANCE ALLOCATION CHART (APPENDIX II OF YOUR -12 OR -20 TM). THIS TELLS YOU WHAT YOU CAN DO AND CHAPTER 3 OF YOUR TM TELLS YOU **HOW** YOU DO IT!

BEFORE YOU START WORKING . . .
UNDERSTAND THESE TERMS

SERVICE
MEANS: TO CLEAN
TO PRESERVE
ADD OR REFILL FUEL
AND LUBE.



INSPECT
MAKE SURE IT'S SERVICEABLE
CATCH ANY HINT OF TROUBLE

ADJUST
REGULATE PERIODICALLY TO PREVENT BREAKDOWN

TEST
CHECK WITH GAGES METERS, ETC.

REPLACE

REPAIR
ADJUST
RESTORE PARTS, STRAIGHTEN, MAKE IT USABLE AGAIN . . .

2ND ECHELON

REPAIRMEN,
ARTIFICERS, MECHANICS
OR ARMORERS

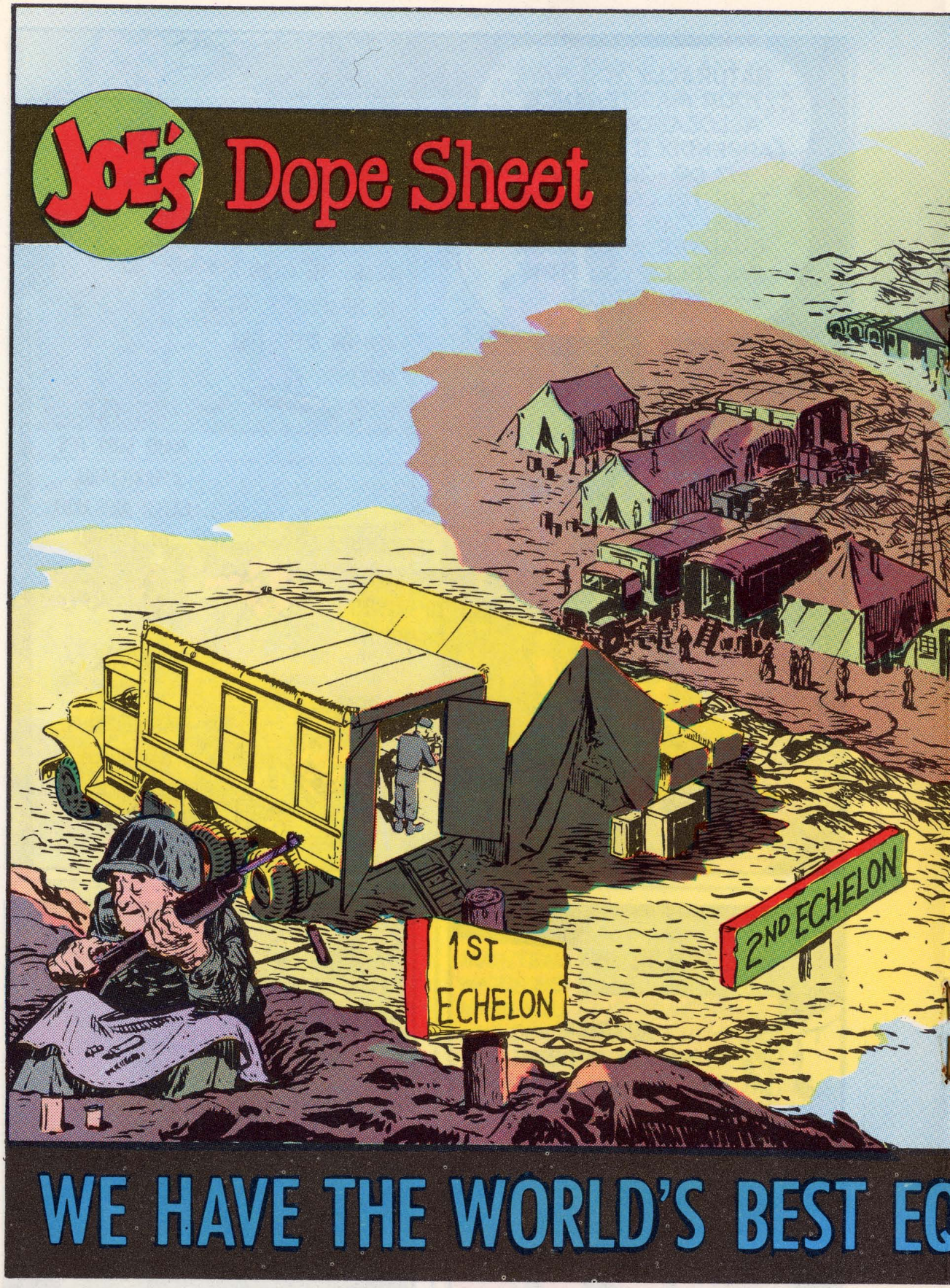
DO THIS

IN ORDER TO
KEEP EQUIPMENT
COMBAT READY

(IT'S THEIR JOB TO EXPEDITE REPAIR JOBS GOING TO HIGHER ECHELONS)

REPLACE, REPAIR
MAKE MINOR
ADJUSTMENTS

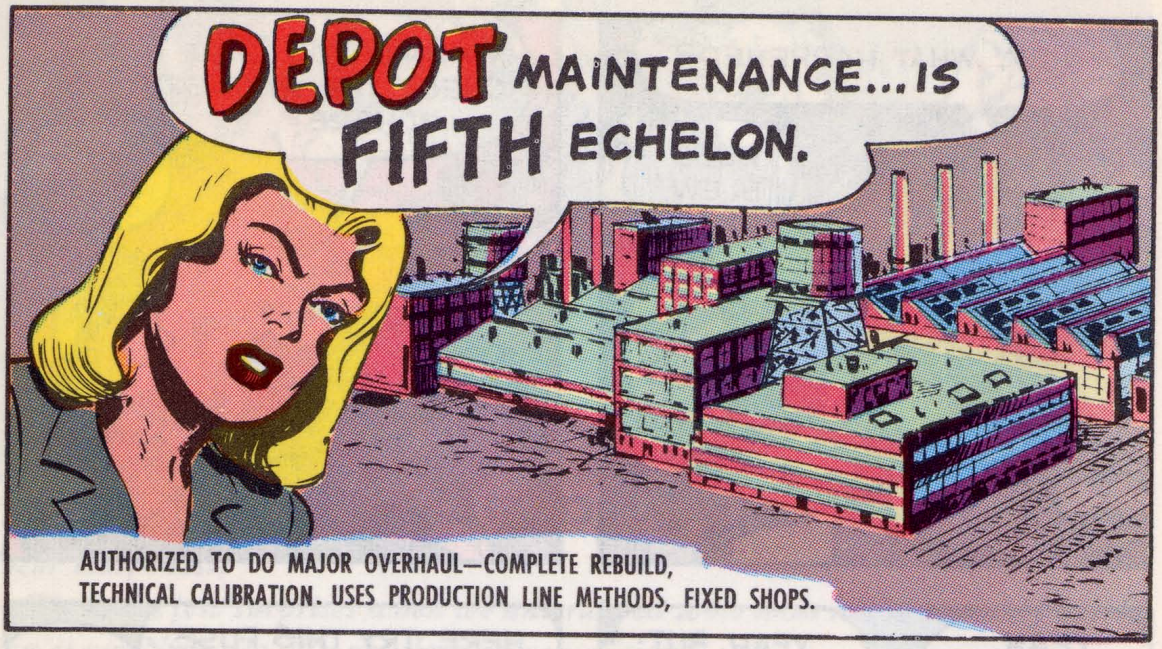
THEY GET **MORE** TOOLS, REPAIR PARTS, SUPPLIES AND TEST EQUIPMENT THEN 1st ECHELON . . . AND ARE TRAINED TO DO THE TOUGHER REPAIR JOBS.


JOE'S Dope Sheet
1ST ECHELON
2ND ECHELON
WE HAVE THE WORLD'S BEST EQ

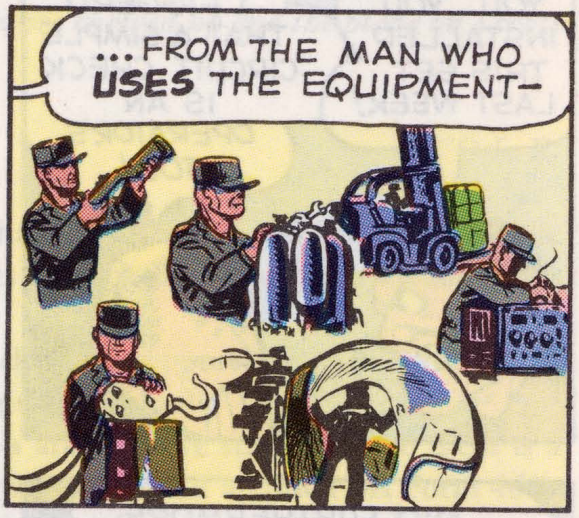
JOE'S Dope Sheet
5TH ECHELON
4TH ECHELON
3RD ECHELON
2ND ECHELON
1ST ECHELON
Each Echelon must do its stuff
To keep gear right up to snuff.
The maintenance you give.
May decide if you live.
If the going starts to get rough!
WE HAVE THE WORLD'S BEST EQUIPMENT ...Take care of it

QUIPMENT ... *Take care of it*

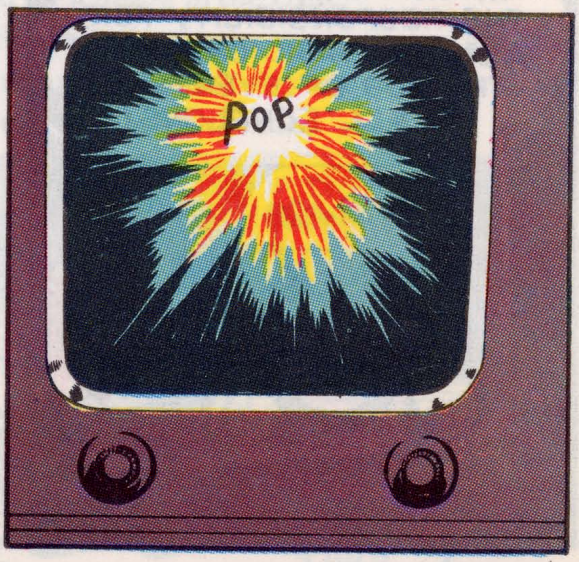
FIELD MAINTENANCE
IS OPERATED MOST OF THE TIME BY THE TECHNICAL SERVICES (ORDNANCE ENGINEER, QUARTERMASTER, ETC.)
THIRD ECHELON
FOURTH ECHELON
THIRD ECHELON
THEY HAVE A LARGER ASSORTMENT OF TOOLS, PARTS, ASSEMBLIES AND TEST EQUIPMENT...
...THAN 2ND ECHELON HAS.
THEY REPAIR COMPONENTS AND ASSEMBLIES --HELP LOWER ECHELONS, PROVIDE MOBILE REPAIR CREWS AND MAINTENANCE SUPPORT TO A NUMBER OF USING ORGANIZATIONS!
"THIRD ECHELON MAINTENANCE MAY BE DONE BY USING ORGANIZATIONS WHEN IT'S AUTHORIZED BY THE TO&E, THE MAC, OR BY SPECIFIC AGREEMENT BETWEEN THE CMDR OF THE DIRECT SUPPORT UNIT AND THE USING UNIT..."
FOURTH ECHELON
MAY BE PERMANENT SHOPS OR SEMI-MOBILE... AND HAVE STILL MORE GEAR. THEY SUPPORT LOWER ECHELONS OF MAINTENANCE. THEY FURNISH MOBILE REPAIR CREWS TO LOWER ECHELONS. MAIN DUTY IS TO REPAIR ASSEMBLIES, COMPONENTS AND END ITEMS FOR RETURN TO USING UNITS OR TO MAINTAIN FLOAT STOCK.

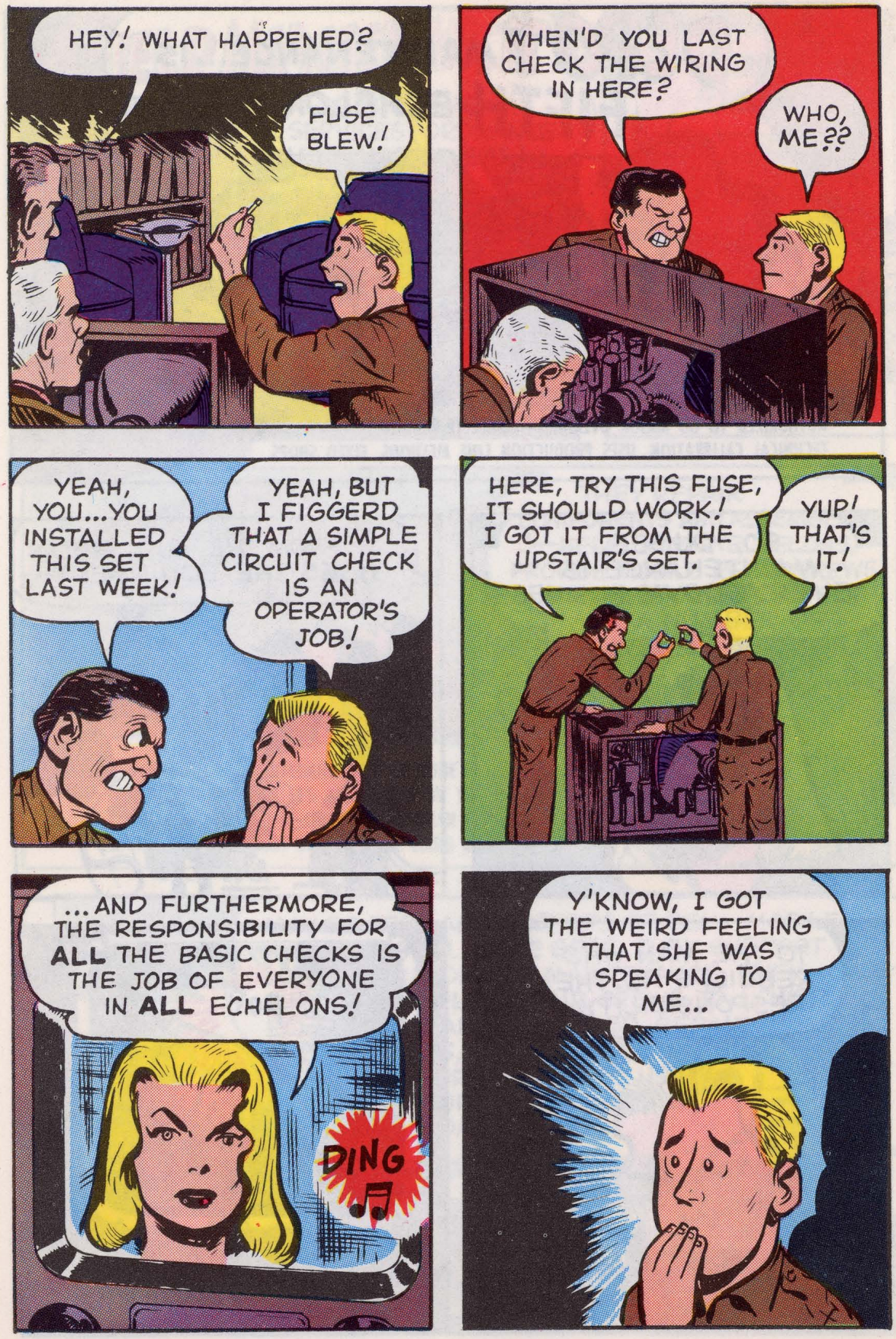

DEPOT MAINTENANCE... IS FIFTH ECHELON.
AUTHORIZED TO DO MAJOR OVERHAUL—COMPLETE REBUILD, TECHNICAL CALIBRATION. USES PRODUCTION LINE METHODS, FIXED SHOPS.

SO, YOU SEE, MAINTENANCE IS EVERYBODY'S BUSINESS


...FROM THE MAN WHO USES THE EQUIPMENT—

TO THE MAN WHO REBUILDS IT... THE RESPONSIBILITY...


POP


HEY! WHAT HAPPENED?
FUSE BLEW!
WHEN'D YOU LAST CHECK THE WIRING IN HERE?
WHO, ME??
YEAH, YOU...YOU INSTALLED THIS SET LAST WEEK!
YEAH, BUT I FIGGERD THAT A SIMPLE CIRCUIT CHECK IS AN OPERATOR'S JOB!
HERE, TRY THIS FUSE, IT SHOULD WORK! I GOT IT FROM THE UPSTAIR'S SET.
YUP! THAT'S IT!
...AND FURTHERMORE, THE RESPONSIBILITY FOR ALL THE BASIC CHECKS IS THE JOB OF EVERYONE IN ALL ECHELONS!
DING
Y'KNOW, I GOT THE WEIRD FEELING THAT SHE WAS SPEAKING TO ME...

DAMAGED TOOLS

Dear Half-Mast,

We had a few surprises when we unwrapped some tools in the assembly building at our Nike site. We got them on requisition.

The threads on a grease gun extension were chewed up and the blade on a cross tip screwdriver was all burred.

What gives?

WO L. R.

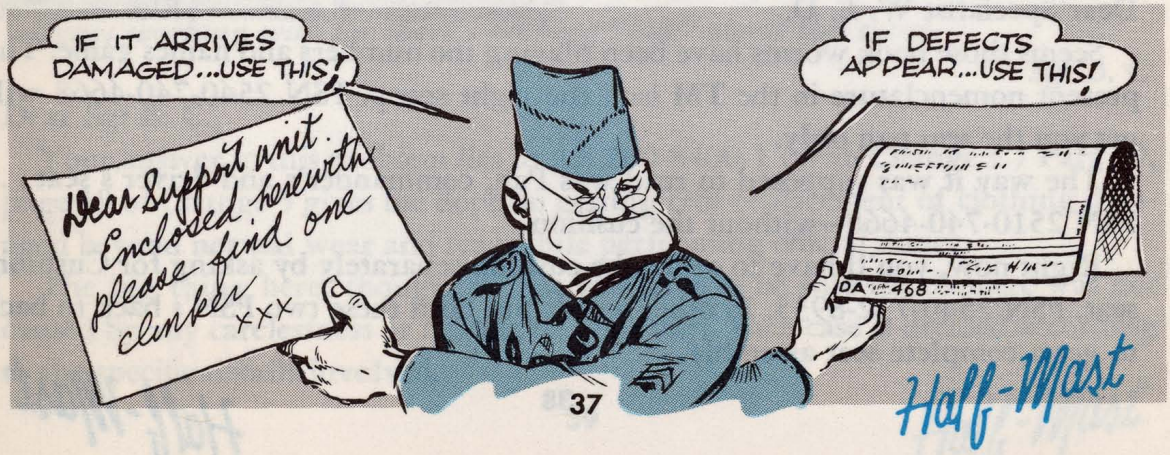
Dear WO L. R.,

H-m-m-m. That's one of those deals that shouldn't happen but did. And the tech service—in this case, Ordnance—wants to track down the situation and that's for sure.

Tell you what I'd do—send the tools back to my support unit. AR 711-16 gives the support people the scoop on accepting the bum tools.

Now . . . finding out you have bad tools after you've started to use them is a different story. When this happens, you want to fire off a UER (DA Form 468) right quick. AR 700-38 gives the go-ahead on sending in the UER.

Just make sure your UER mentions the shipping order number you got the tools under, the name of your support unit and the name of your outfit. And, of course, the UER goes to the tech service responsible for the tool.



ROUGH-RUN RUCKUS

Dear Half-Mast,

After my truck has run awhile at normal operating temperature and at no greater speed than 35 MPH, it won't run smoothly at speeds less than 20 MPH. It acts something like vapor-lock, I think. What do you recommend?

S. A.

Dear S. A.,

An engine that runs rough when you're operating at low speeds normally calls for a general check-up to pinpoint the cause. A tune-up's the way to locate your trouble, and it may put your engine in the pink without extra tinkering around.

Instead of vapor-lock, rough running's more likely to be caused by a stuck or dirty crankcase ventilator metering valve (Donaldson valve). If you find, after cleaning this vent valve, that the engine still runs rough, then it could be a defective carburetor, or a vacuum leak either in the manifold or the vacuum side of the fuel pump.

If the carburetor's defective, turn it in and draw a new one. If it's a vacuum leak, check it out like your TM says.

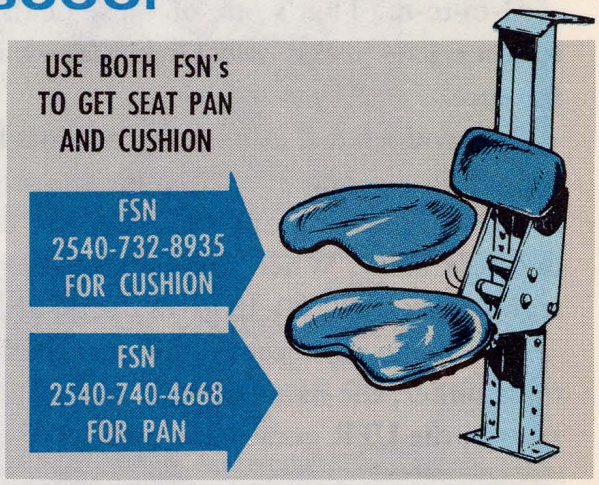
Half-Mast

SEAT SCOOP

Dear Half-Mast,

In TM 9-2300-203-20P (Oct 58) the parts pub for the M59 APC and M84 4.2 mortar carrier, on page 72 is listed Seat, single, vehicular: Commander's and driver's, w/cushion, assy under FSN 2540-740-4668. But every time I order it, I get the seat without the cushion. What's the story?

SP5 W. E. D.



Dear Specialist W. E. D.,

Seems those book worms have been playing the numbers and names game. The present nomenclature in the TM isn't the right scoop. FSN 2540-740-4668 will get you the seat pan **only**.

The way it was supposed to read was Pan, commander's and driver's seat . . . FSN 2510-740-4668—without the cushion.

Right now, you'll have to order the cushion separately by asking for Cushion, seat, FSN 2540-732-8935. In other words put both these two FSN's back to back to get a complete seat assembly.

Half-Mast

USE YOUR UER

Dear Half-Mast,

Some of our new batteries are found to be so sulfated they're useless when installed, because vents were not properly sealed to prevent air from entering the battery during shipment and storage.

Instead of sealing the vents with wicks or cellulose tape, why don't they seal each battery in a vacuum package so it'll arrive in usable condition?

Mr. M. J. W.

Dear Mr. M. J. W.,

There's just one thing wrong with your idea. An effective vacuum container might cost more than the battery.

O'course any vehicle user wants a live battery guarantee . . . even if it costs double. But it was to seal up this kind of hole in Uncle's pocket that UER's were invented.

To make sure those batteries are shipped with vents properly sealed, fire in a UER, like it says in AR 700-38, every time a sulfated battery shows up.

UNFAIR WEAR AND TEAR

Half-Mast

Dear Half-Mast,

As you know, there're a lot of maintenance and work-detail jobs that play rough with your clothes. Like working with batteries (even with an apron), tarring a roof and stuff like that.

Is there any way we can get our uniforms replaced without cost when we ruin them doing this kind of work?

I go along with this "fair-wear-and-tear" business, but when we ruin a pair of fatigues working with tar there's nothing "fair" about this wear.

Sgt B. C.

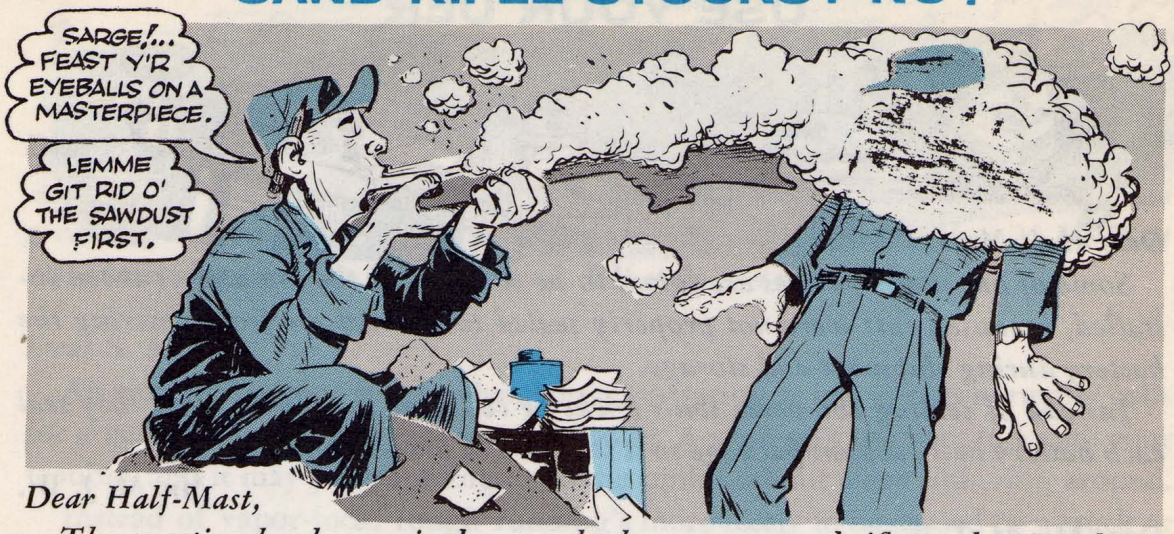
Dear Sgt B. C.,

Your answer to this problem lies in AR 700-8400-1 (with Change 3.) Para 19, page 19 of Change 3 gives the dope on getting free replacement of clothing damaged beyond normal wear and tear while performing official duties.

The big thing here, though, is that you have to be sure the damage was not caused by any carelessness or neglect on your part. Each case is decided according to the specific details involved.

Half-Mast

SAND RIFLE STOCKS? NO!



Dear Half-Mast,

The question has been raised as to whether we can sand rifle stocks. I've always thought that it shouldn't be done . . . what do you say?

Sgt G. W. C.

Dear Sgt G. W. C.,

Well, first off . . . there are no publications that specifically say you can't sand stocks or handguards, but it isn't a good idea and here's why:

In order to do the job right, you first have to get rid of the linseed oil by means of a vapor degreaser which only higher echelon does. If sanding's done without removing the oil, the grain will raise and cause the surface to become fuzzy.

Then the question comes up as to what extent should the stocks be sanded. The term "light sanding" may mean one thing to one man and another thing to another man, and as a result you may end up with many unserviceable stocks.

If you have different individuals sanding the stocks and handguards, eventually there'll be a difference in color. To redye stocks you've got to have a controlled mixture of non-grain raising dyes and linseed oil. This requires good "know-how" and the solution's not usually available to the using unit.

But all this doesn't mean the stocks can't be sanded if the word comes down to sand 'em. If your local command wants 'em sanded, chances are provisions will be made to see that a good job is done.

So that's the story.

Half-Mast

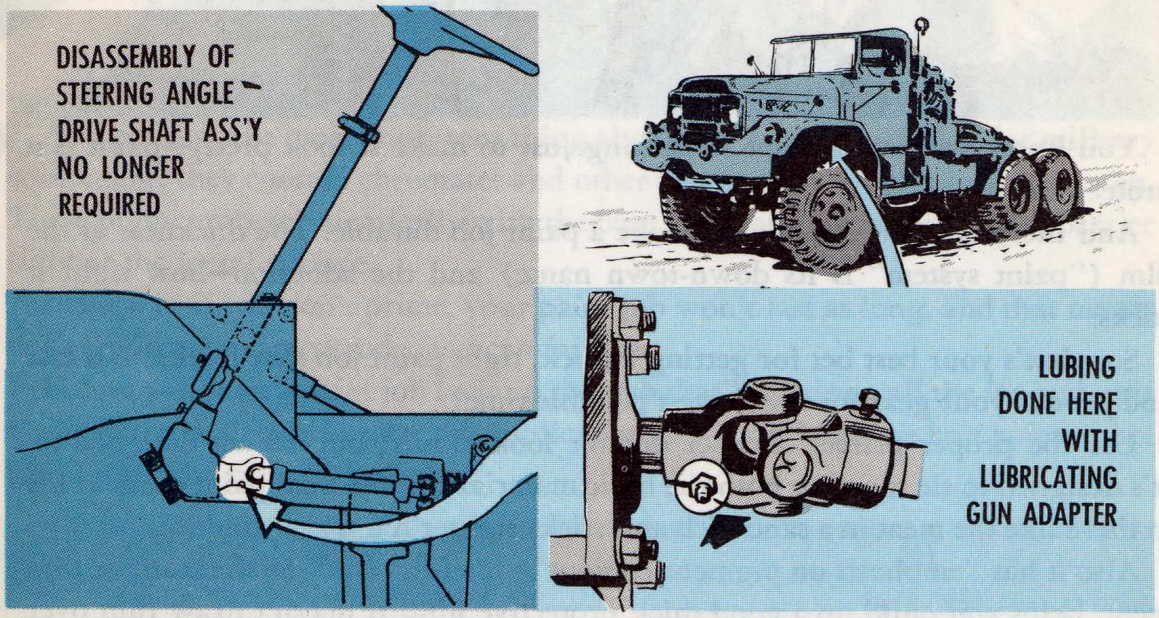
SWIFT SHIFT

Dear Half-Mast,

LO 9-2320-206-10 (24 Jul 58) adds a monthly disassembly and servicing for the steering angle drive shaft assembly on the M123 and M125 10-ton trucks that wasn't required by the TM or the old LO 9-8002.

We disassembled this unit on one vehicle and found that servicing wasn't needed. Then, because this job used a lot of our mechanic's time and a stack of spare parts, we asked our Ordnance support to let us skip disassembly of this unit on our other trucks. Is it necessary to take this unit apart monthly like the LO says?

CWO O. P.



Dear CWO O. P.,

Like it says in the fine print, Sir, the LO is the law on servicing your equipment. It steps in ahead of anything you find in the TM or any other pub.

But on this point of disassembling the steering angle drive shaft assembly, there's been a shift in thinking. The disassembly is no longer required. Instead, lubing is to be done by using adapter, lubricating gun—FSN 4930-387-9551—in the lubrication kit—FSN 4930-357-6301—that's a part of your No. 1 common tool set.

LO 9-2320-206-10 is supposed to be revised soon to drop the disassembly and to change the lubrication interval for these universal and slip joints to quarterly. So . . . until it arrives . . . you're doing right by getting approval from your Ordnance support to pass up servicing the unit until it's had at least three months' use.

This'll save all that dough you'd have had to put into new universal-joint parts.

Half-Mast

You know you don't paint something just to make it look pretty—paint is a protection.

And there are two things that make a paint job durable. The thickness of the film ("paint system" is its down-town name) and the adhesion—how tight it sticks.

So what's your best bet for getting a thick, tight paint job that'll stick and last and protect your gear for the longest possible time?

Use the proper primer. Primer doesn't look so nice, but it's not designed to. It's designed to tie together both the basic material and the final paint coats. It fits in there like the meat in a sandwich and sticks tighter'n a train window.

Also it has "emphasis on pigment content"—it's fulla stuff. So the stuff, or pigment, helps you build up a good thick protective film. It doesn't draw thin over the sharp edges of the job, and it smooths up any minor irregularities, nicks and scratches, particularly if you sand your prime coats before putting on the final finish.

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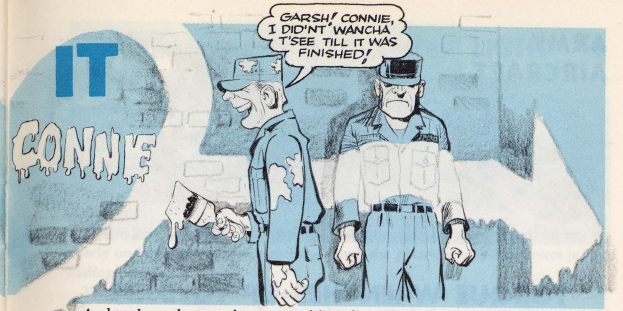

And perhaps the most important thing about the primers specified for military equipment, they contain chromates and other compounds which check corrosion. These pigments react chemically with the base metal and form a corrosion barrier right at the metal surface.

Believe it, if you don't prime, your paint job won't last as long, and that means your equipment can corrode, and can fail you.

Before you start a paint job look up the pub that'll give you all the ins-and-outs of the job to be done. Here are the publications that will help you be a painter, not just a guy who can change color.

FOR	SEE
Painting Instructions for Field Use	TM 9-2851
Paint Remover	TB AVN 23-3
Painting Equipment	TM 5-618
Marking of Obstructions to Air Navigation	TB ENG 255
Standard Painting, Lettering, and Numbering of Railroad Equipment	TM 55-289
Painting of Vessels	TB TC 4
Painting (aircraft) Hazards and Safeguards	TM 1-42A-1-1
Painting Exterior and Interior Materials and Methods	TM 5-618
Identification and Use of Luminescent Materials (aircraft)	TM 1-42A2-1-3
Mixing Aluminum-Pigment paste for Aircraft	TM 1-42A2-1-12
Storage Control of Paint Materials	TM 1-42A2-1-4
Paints and Varnishes Used by Transportation Corps	SB 55-18
Color and Marking of Vehicles and Equipment	AR 746-2300-1
Painting and Marking of Army Aircraft	TB AVN 7

Before you paint a piece of equipment, write down somewhere a copy of all the markings on the equipment. After the paint has dried, be sure to re-mark like it was before.

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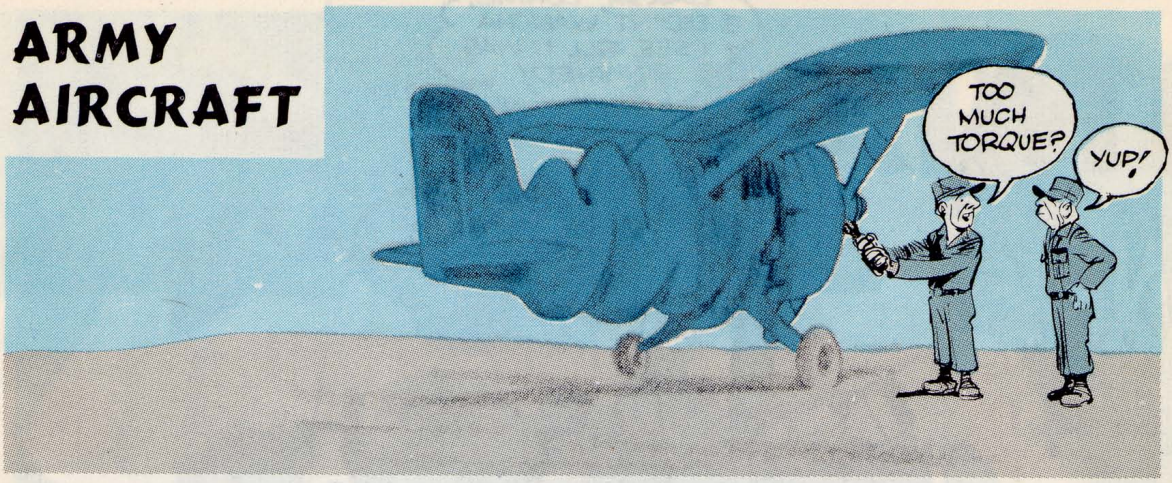
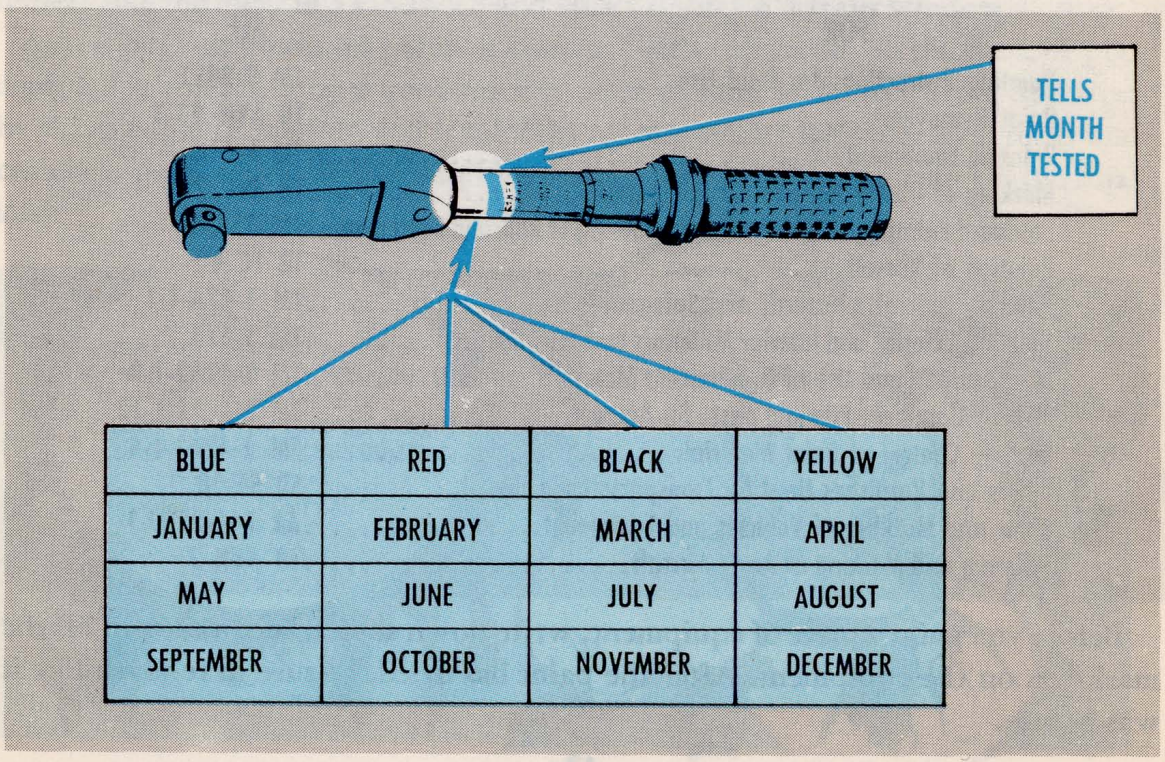


TORQUE WRENCHES UP TO DATE

Sure, I know, it's easy to overlook the color code on your torque wrenches and let 'em slip past their checking date. And since you almost always get your wrench back right away when it **IS** checked, it's a little hard to get into a big sweat to have 'em checked promptly every time they come due.

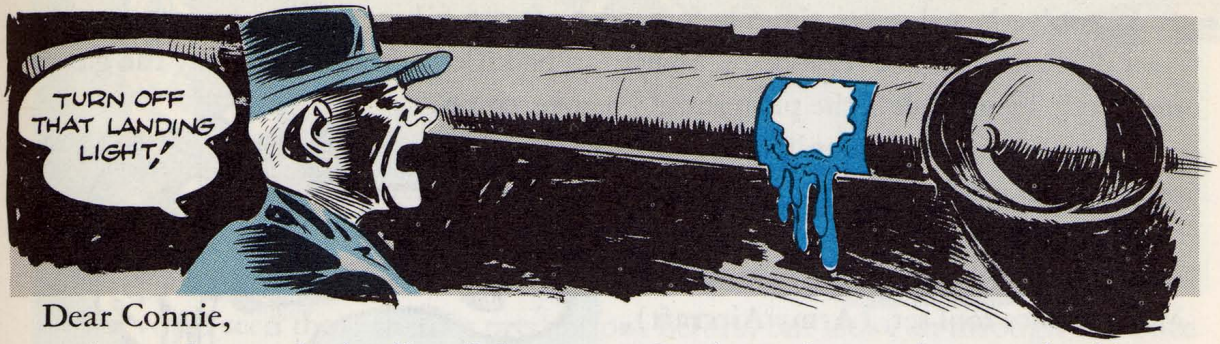
But, you really oughtta—because one defective wrench can get you into so darned much trouble that it outweighs all the good work you've done for years with accurate wrenches.

So the smart laddies run their wrenches over to Field Maintenance for checking and re-coding a little **before** they come due, not a little **after.**



BLUE	RED	BLACK	YELLOW
JANUARY	FEBRUARY	MARCH	APRIL
MAY	JUNE	JULY	AUGUST
SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER

SEMINOLE (L-23) CENTER LIGHT



Dear Connie,

As you know, the landing lights on our Seminoles have to be turned off immediately on landing to prevent melting down the plastic streamline covers in the leading edge of the wing.

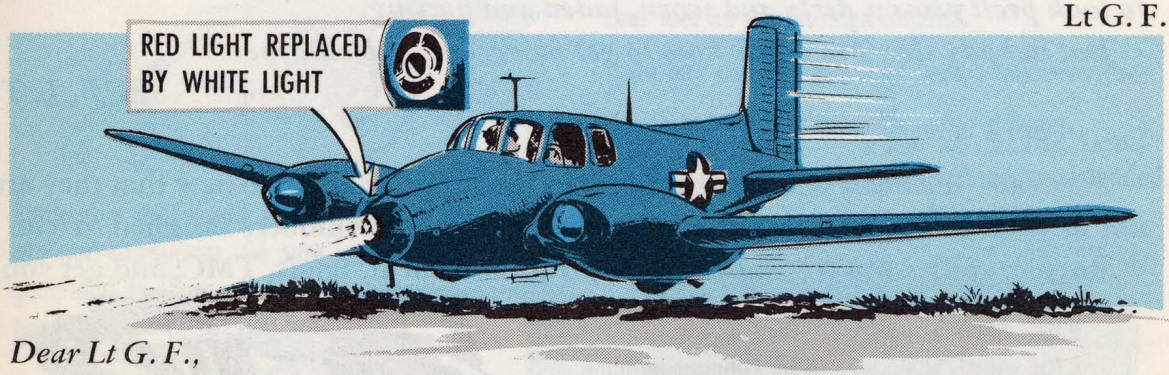
Then we have to flick on first one then the other briefly for taxiing. This is not only a nuisance; it distracts the pilot when he may be having more than enough to do finding his way around a strange airport.

Recently the Grimes anti-collision light was put on top of the vertical stabilizer of the aircraft. We felt that this revolving beacon eliminated the need for the red passing light in the nose.

With my CO's permission, we have replaced red passing light with an L-19 landing light, which is to all intents the same bulb, except white instead of red.

We have adjusted this light to give us good coverage of the runway when on the ground, and find that it is now a pleasure to taxi the ship at night. Also, the additional white light forward is useful in our approach and landing.

Lt G. F.



Dear Lt G. F.,

It sounds like an excellent idea, particularly because of those plastic lenses over the wing lamps. But you and your skipper are running right on the ragged edge of trouble for unauthorized modifications. AR 750-712 (5 June 57) para 4 (3) lets you remove the red light. You're OK there, 'cause you can sure put the aircraft back to standard within 48 hours—but how do you explain putting the white bulb in??

But if you and all the other L-23 people who want that white light will fill out UER's (DA Form 468) on it, maybe the Transportation Corps will make it legal for everybody. So grab your pencils, Men!

SUPER SNIFFER FOR SAFETY

As you've heard many times before, aircraft can fill up with carbon monoxide. And that means that everyone on board can be killed, either directly by the gas or indirectly by a crash if the pilot should be overcome.

So comes now a super sniffer for your safety. This gismo is called a Kit, detector, FSN 6665-283-0654. It's issued to any unit that has an Organizational Maintenance tool set, (Army Aircraft), either set A supplemental (FSN 5180-323-4948), set B (FSN 5180-323-4979) or set C (FSN 5180-323-5037).

You requisition the kit from your Ordnance supply Officer. You also get two indicator tubes, FSN 6665-276-7545. The kit can be used either on the ground or in flight to check the atmosphere in cabins and cockpits.

But, play it smart, and don't rely on the kit to the extent that you slack off on your inspections of the exhaust systems and cockpit ventilating or heating systems. This is an area where you can't afford to be even a little bit careless.

SYSTEM MARKING TAPES

Dear Half-Mast,

The color code marking tapes on the different systems of our aircraft are getting to look pretty sorry, dirty and worn, faded and peeling.

But nobody seems to know how to get more. Can you clue me?

SFC F. L. T.

Dear SFC F. L. T.,

Sure can—the tapes you want are new in the supply system, so new that they are not in your -20P's, and they don't have Federal Stock Numbers assigned to 'em.

But ask your Air Tech Supply to requisition from St. Louis, TMC; and get you:

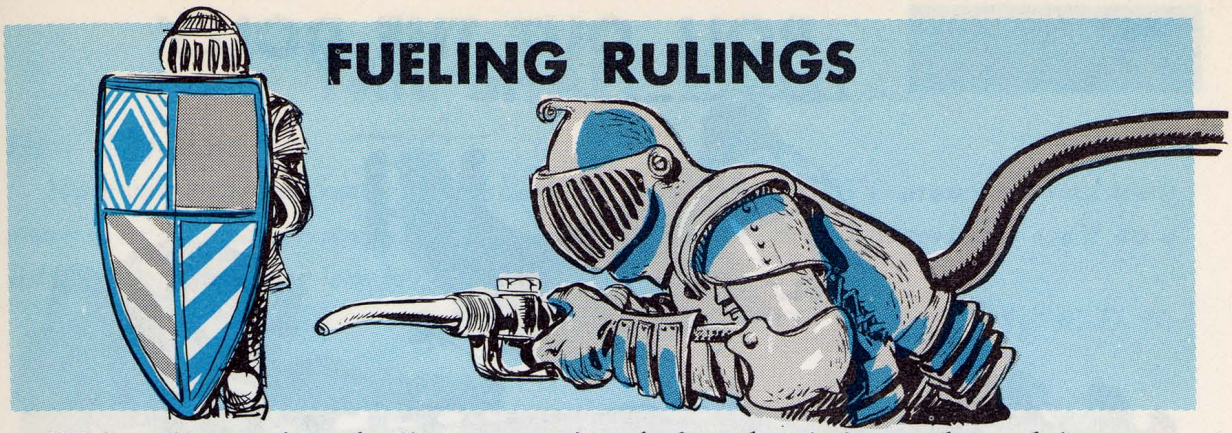
8700 AFMF-1.....for Fuel lines
8700 AFML-1.....for Lubrication lines
8700 AFMH-1.....for Hydraulic lines
8700 AFMIA-1.....for Instrument lines
8700 AFMFP-1.....for Fire Protection lines
8700 AFMEC-1.....for Electrical Conduits

You see how it works, the 8700 AFM stays the same, the last letter or letters in the designation show what system it's for.

You'll get a ten foot length, which is about all you'll use before it dries out.

Half-Mast

FUELING RULINGS



We've all seen these fueling precautions before, but let's run through 'em once more, just for safety's sake.

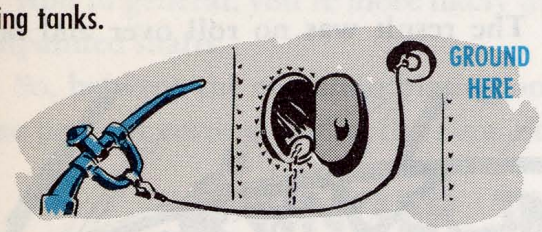
DO

Fuel only in the open air.

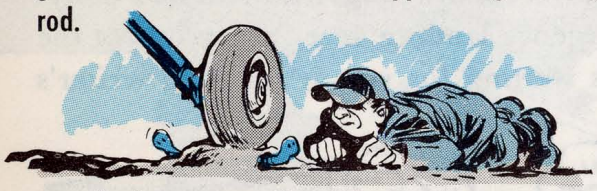
Wait until the propellers or rotors are completely stopped.

Check for proper grade and quantity of fuel, and be sure the servicing equipment filtering system is clean and in proper working order.

Make ground and bonding connections before opening tanks.



Remember that wood, packed snow or dry concrete are non-conductors. Be sure your aircraft is really grounded to the earth, or an approved grounding rod.



Stop fueling at once if any danger threatens.

Report any accidents, spills or mistakes immediately.

Keep a man on the nozzle all the time.

Change clothes at once if you spill fuel on 'em.

DO NOT

Fuel in the hangar or any inclosed place.

Ever try to fuel with engines running.

Take it for granted that the service crew is putting the proper fuel into your aircraft. (It's **you** that rides in it.)

Ever fuel an ungrounded aircraft.

Take any risk or chances to save a few minutes.

Try to get away with, or cover up a boner.

Tie or block the nozzle open, or leave it unattended.

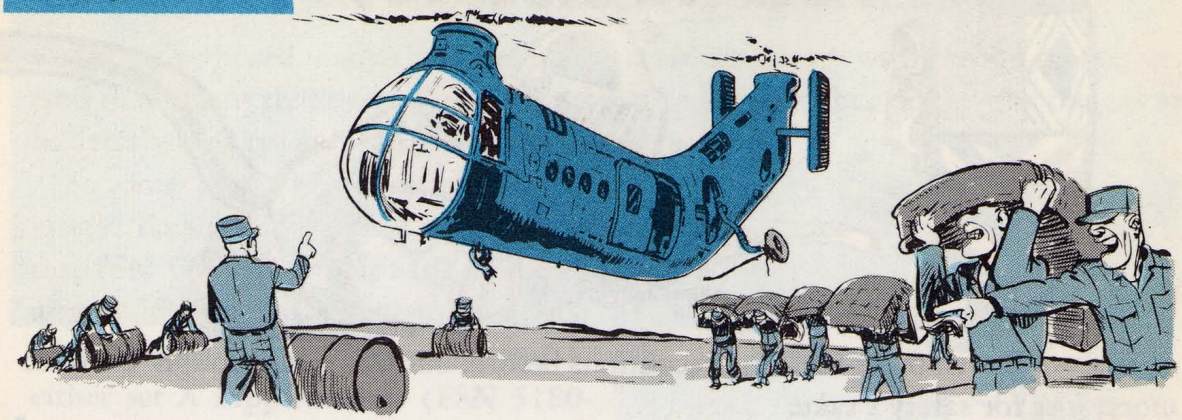
Carry matches or lighter while fueling.

Carry loose stuff that can fall into fuel tanks.

Smoke near an aircraft or fuel tanker. (No closer than 50 feet.)

The New Words to an Old Song Start With . . .

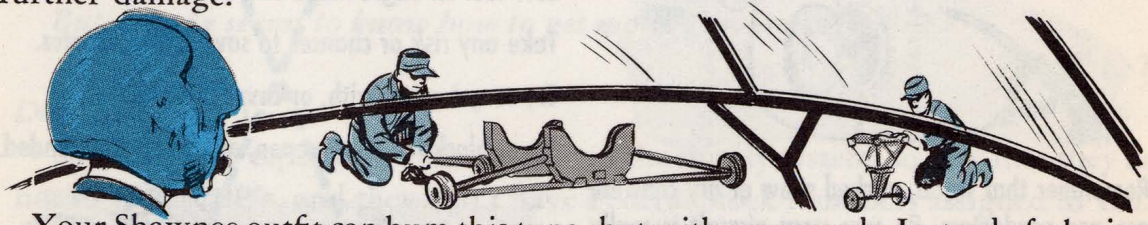
ROLL OUT THE DOLLY



A collapsed landing gear on an H-21 Shawnee spells trouble in two ways. Besides ruining a valuable piece of machinery, there're the lives of at least three crew members to consider.

The safety angle comes into the picture when you remember that a collapsed gear leads to roll-over, the moving blades hit the ground and . . . that's all she wrote. The combination of the main rotor blades tracking at high RPM and an immovable object—like the ground—means anybody inside a quarter-mile better duck.

That's why you've got to give a lot of credit to the guys in the 13th Transportation Company at Huk Song Ni, Korea, for singing "Roll Out the Barrels." When a hard landing by one of their Shawnees collapsed its main gear, quick thinking rolled the barrels out to the touchdown site—turned them on end—and set mattresses on top to cushion the touch-down. The result was no roll over and no further damage.



Your Shawnee outfit can hum this tune, but with new words. Instead of playing this local fabrication deal by ear, there's a full set of drawings available on a dolly-type cradle. It makes a handy mobile emergency landing gear. Your copy of the sheet music, with the full arrangement, is waiting for you at the song writer's address:

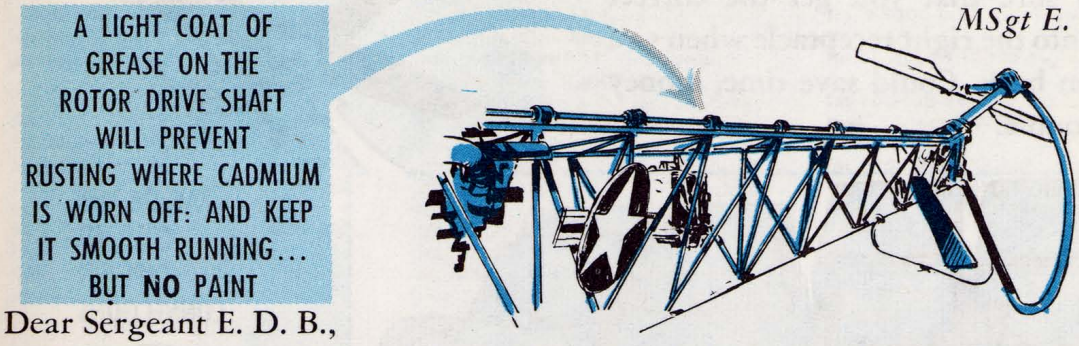
U. S. Army Transportation
Materiel Command
12th & Spruce Streets
St. Louis 3, Missouri
ATTN: TCMAC-EH-21

TAIL SHAFT PAINT

Dear Half-Mast,

How come the tail rotor drive shafts on our Sioux (H-13's) aren't painted with enamel or lacquer or sprayable strippable rust preventive? Seems like we'd do a lot less work keeping 'em bright.

MSgt E. D. B.



Dear Sergeant E. D. B.,

Painted tail rotor drive shafts might stay bright longer, but there are several reasons why they must be bare metal.

First, it's darn near impossible to paint a shaft even enough that it won't vibrate. It's been tried. (Remember, that shaft turns at 3750 RPM.)

Next, the shaft bearings are such a close fit that you'd have to remove the paint to slip one off the shaft when it needed replacement.

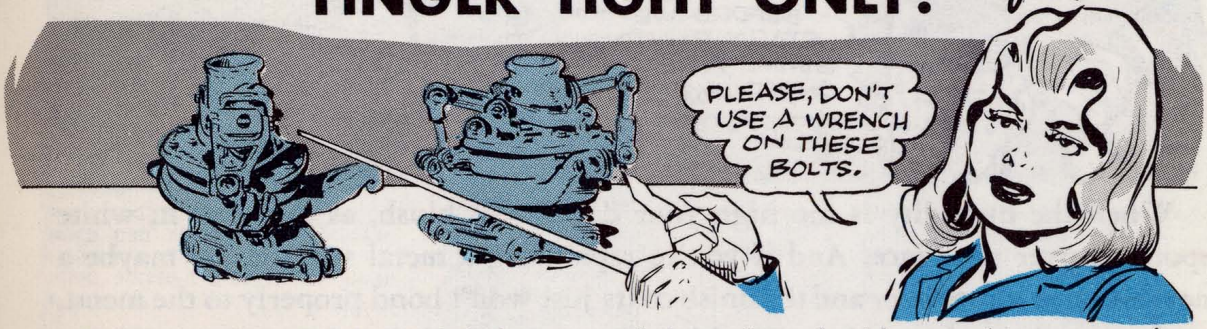
And then too, the shaft has a required Magnaflex inspection every so often, and all the paint would have to be stripped for that.

And in general, you're more likely to see any developing cracks or flaws on the unpainted shafts.

So, between the cadmium plating on the shaft, and a light coat of grease, you can prevent rusting, and at the same time have a safe smooth-running shaft.

FINGER TIGHT ONLY!

Half-Mast

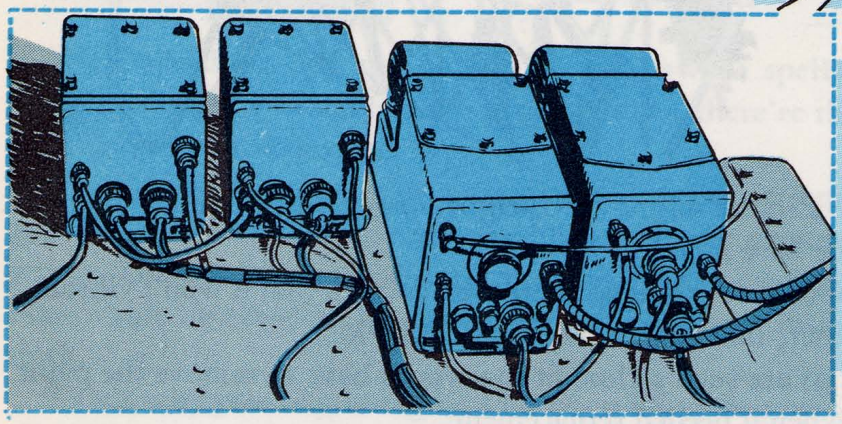


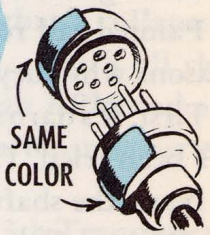
Much trouble, much work being caused these days, besides much money going down the drain. Too many, far too many Sioux (H-13) swashplate assemblies, FSN 1560-525-3955, and fork assembly, swashplate, FSN 1560-124-3049 showing up in field maintenance broken because the bolts were too tight.

When the book says "finger tight" on those bolts, that's exactly what it means. Please don't put a wrench on 'em.

CABLES CONFUSED?

When you aircraft mechanics remove radio equipment to get at air-frame work, please to take precautions. Tag or put colored tape on the connections when you remove the radio boxes. Then you'll be plumb sure that you get the correct cable into the right receptacle when you put 'em back. Could save time, money and trouble.





SWEAT IT OUT

"It's not the heat, it's the #$%—&'()* humidity!" Ever stop to think that the same humidity that makes you so miserable can also make your paint jobs miserable?

When the humidity is too high your dopes will blush, as they call it, white spots all over the place. And if you're repainting a metal surface, say maybe a new elevator, the primer and the finish coats just won't bond properly to the metal.

So sweat it out for a while. The blasted weather can't last forever, even if you think it already has. Wait for a clear dry day to do your painting. Better to have a ship fly for a few days with a silver elevator than to spend much time, energy and paints patching up a peeling paint job.

Generally, if the day is so humid you feel sticky and sloppy, it's too wet to plow—er, paint, that is.

The Scoop

A selected list of recent publications of interest to Organizational Maintenance personnel.

MISCELLANEOUS

FM 11-15 Oct Sig Cable Const Bn.
FM 57-17 Sep Airborne Div Cav Trp.
SB 9-186 Oct Truck Tractor M26, M26A1, 45 ton tank transport Trailer M15A1, A2: replacement wheels.
SB 11-493 Oct Avionics Maintenance Float.
GTA 9-106-46 Sep CD500 Trans, oil pressure check points.

TECHNICAL BULLETINS

TB AVN 25-14 Oct H-34 Oil Coolers.
TB ENG 351 Sep Rifle Brackets on Eng Equip.
TB SIG 213-29 Sep Digest of Field Reports for Sig Equip.
TB 9-2350-201-12/1 Sep tanks, M41A1, A2, A3 Fire Control Sys.
TB 9-5018-2-1/2 Oct Nike-Ajax director station.
TB 700-5300-1 Sep Ident markings on bolts, screws, studs, nuts, rivets.

MAINTENANCE FORMS

DD Form 365 Sep Record of Weight and Balance Personnel (TM 1-1-1B-50).
DA Form 55-26 Aug Floating Equip Data (General Characteristics) (AR 700-1900-5).
DA Form 55-27 Aug Floating Equip (Main Eng Data) (AR 700-1900-5).
DA Form 55-28 Aug Floating Equip (Boiler Data) (AR 700-1900-5).
DA Form 55-29 Aug Floating Equip (Misc Machinery) (AR 700-1900-5).
DA Form 2218 Jul Prescribed by TM 38-660-2.

MWO's

MWO ORD Y4-1-W3 Sep Nike-Ajax Acq ant-recv-trans group.
MWO ORD Y25-W5 Nov Nike-Herc Acq ant-recv-trans group.
MWO ORD J25-5-W1 Nov Modify Nike-Herc Booster Ignition wrench.
MWO ORD Y28-W25, Y39-W16 Sep Nike-Herc Tracking Station, Director-Computer.
MWO ORD Y75-W16 Nov Nike-Herc.
MWO ORD Y86-W12 Nov Nike-Herc Launching rail.
MWO 9-2350-212-20/17 Oct Ontos Intercom/radio.

LUBRICATION ORDERS

LO 3-1040-206-10 Sep Flame Thrower, mech, turret mtd, M7A1-6.
LO 5-1011-2 Sep Aggregate Dryer, Barber-Greene Mod 837.
LO 5-1032-1, -2 Sept Ditcher, Barber-Greene Mod 44C.
LO 5-1047 Oct Sand Spreader Flink Mod SS.
LO 5-3805-200-15-1 -2 Oct Loader, scoop type (Clark Mod 175A-M).
LO 5-3805-207-15-1, -2 Oct Loader, scoop type, Clark Mod 85A-M.
LO 5-3895-203-15 Sep Aggregate Spreader Entyre Mod C8 M1.
LO 5-4310-209-15 Oct Air Compressor, 15 CFM 175 PSI Curtis Mod CVG-969-A-ENG-1, CVG-A-ENG-3.
LO 5-4320-202-12 Sep Pump, Centrif, 25-ft head, 166 GPM, 2-in, Carver Mod K203W.
LO 5-5072 Oct Generator, 30KW, Hobart Mod HF 30G.
LO 5-5101 Oct Air Compressor, Davey Mod 315-WDS.
LO 5-5163 Oct Waukesha Eng Mod 6-MZA.
LO 5-5164 Sep Waukesha Eng Mod 6-SRKR.
LO 9-1055-204-12 Sep Honest John Launcher.
LO 9-5056-12 Sep Propellant Service Trk M268E1.

TECHNICAL MANUALS

TM 1-1L-19A(T)D-4-20P Sep
TM 1-1L-20A-4-20P Sep
TM 1-1L-23D-4-20P Sep
TM 1-1U-1A-4-20P Sep
TM 1-1H-13H-4 Aug
TM 1-1H-21C-1016 Oct Inspect Pitch Link Nut.
TM 1-1H-23D-1 Aug
TM 1-1H-23D-4 Aug
TM 3-1040-206-20P Oct Flame Thrower, mech, turret mtd, M7A1-6.
TM 3-4240-208-12 Sep Filter Unit, Gas Particulate, EMD, 600 CFM, M9.
TM 3-4240-211-12 Oct Filter Unit, Gas Particulate EMD, 5000 CFM, M12.
TM 5-200 Sep Cannonflage Nets/Sets.
TM 5-323 Oct Testing Engine driven gen sets.
TM 5-2420-205-20 Sep Tractor, industrial, Minn-Moline, Mod 445M.
TM 5-3655-201-12P Carbon Dioxide Unit Cardox Mod FE-34365.
TM 5-3825-200-20 Oct Snow Plow, 10 ton, blade Frink Mod RO-10, trk Oshkosh Mod WT-2206, Hall-Scott eng Mod 1091 OS.
TM 5-3825-208-12 Sweeper, Spencer Mod MS-1.
TM 5-3895-203-15 Oct Spreader, Aggregate, Entyre Mod C8M1.
TM 5-4120-201-12P Oct Air Conditioners, Recony Mod Baf-55118.
TM 5-4310-200-15 Oct Air Compressor, recip, 15CFM 175PSI, Champian Mod OEG-458-ENG (gas drive) Mod OEH-458-Eng (elec drive).
TM 5-6115-214-20, -20P Sep Gen Set, 45KW, Stewart and Stevenson Mod 28100.
TM 5-6125-201-20 Sep Motor-Gen, 15KW, Input 60C, Output 400C.
TM 9-244 Aug Maint of elect motors.
TM 9-4935-253-20P/1 Oct Nike-Herc Test Equip Spec Tools.
TM 9-1220-204-12 Oct Plotting Board M16.
TM 9-9504-4-12 Sep Flight Simulator SM-112/MSA-6.
TM 10-3530-201-20P Aug Clothing Repair Shop.
TM 10-3930-214-20P Oct Forklift Clark Mods Carloader D-751-960, -970, Army Mod MHE 161.
TM 10-3930-217-20P Oct Forklifts Models Clark 60-RS (MHE 115), 6024 (MHE 127) 6024-RS50 (MHE 127), 6024-RS-52 (MHE 143).
TM 10-3930-601-20P Oct Straddle Trucks Ross 92-10856 (MHE 125), 92-10856-RS (MHE 125) (MHE 125A), 91-7968 (MHE 150).
TM 11-5805-252-128 Oct Ringing inverter TA-46/FT, 46A/FT, 46B/FT.
TM 11-5805-267-12P Oct Repeater Group, Telephone AN/FCA-2.
TM 11-5805-265-12 Sep Telegraph Repeater TH-18/FG.
TM 11-5805-294-15 Oct Switch Board SB 993/GT.
TM 11-5820-203-15 Sep Radio Repeater AN/MRC-54(V).
TM 11-5820-316-10P, -20P Oct Power Supply PP-109/GR, PP-109A/GR.
TM 11-5825-203-10P Oct Receiver Group OA-1451(XE-3)/PRR.
TM 11-5825-215-10P Oct Indicator, Azimuth IP-137/GRD.
TM 11-5826-208-12 Oct.
TM 11-5840-230-10P Oct Signal Comparators CM-36/TPS-ID, CM-36A/TPS-ID.
TM 11-5895-209-10P, -20P Oct.
TM 11-5895-252-12 Oct Transponder Set AN/DPN-62V.
TM 11-5895-245-10P Radio Receiv-Trans RT-211/TPX, RT-211A/TPX.
TM 11-6125-205-15P Oct Motor-Gen PU-257/U.
TM 11-6130-219-12P Oct Rectifier Power Units PP-34/MSM, PP-34C/MSM.
TM 11-6625-226-12P Oct Test Set, Elec Meter TS-656/U.
TM 11-6625-263-15 Sep Elec Inst Multiplier MX-1472/U.
TM 11-6625-280-15 Aug Sig Generators AN/URM-49(A).
TM 11-6625-298-20P Oct Ohmeter ZM-21/U, ZM-21A/U, includes Test Set 1-48-A, -B.
TM 11-6660-218-15P Oct Meterological Station, manual, AN/TMQ-4.
TM 11-6665-201-12P Oct Radiac Set AN/PDR-27A.
TM 11-6675-200-20P Oct Theodolites ML-47-C thru ML-47-R, ML-247 (-A); ML-474/GM (double center).
TM 11-6720-204-10P, -20P Oct Camera PH-629/UF.
TM 11-6740-215-20 Sep Photo Print Drier PH-679/U.
TM 55-403 Sep Fundamentals of Helicopter Maint.
TM 55-1905-202-12P Aug Landing Craft, Mech (LCM 8).
TM 55-1935-201-12 Sep 60 Ton Float Crane 413(D).

BE YOUR OWN INSPECTOR ON

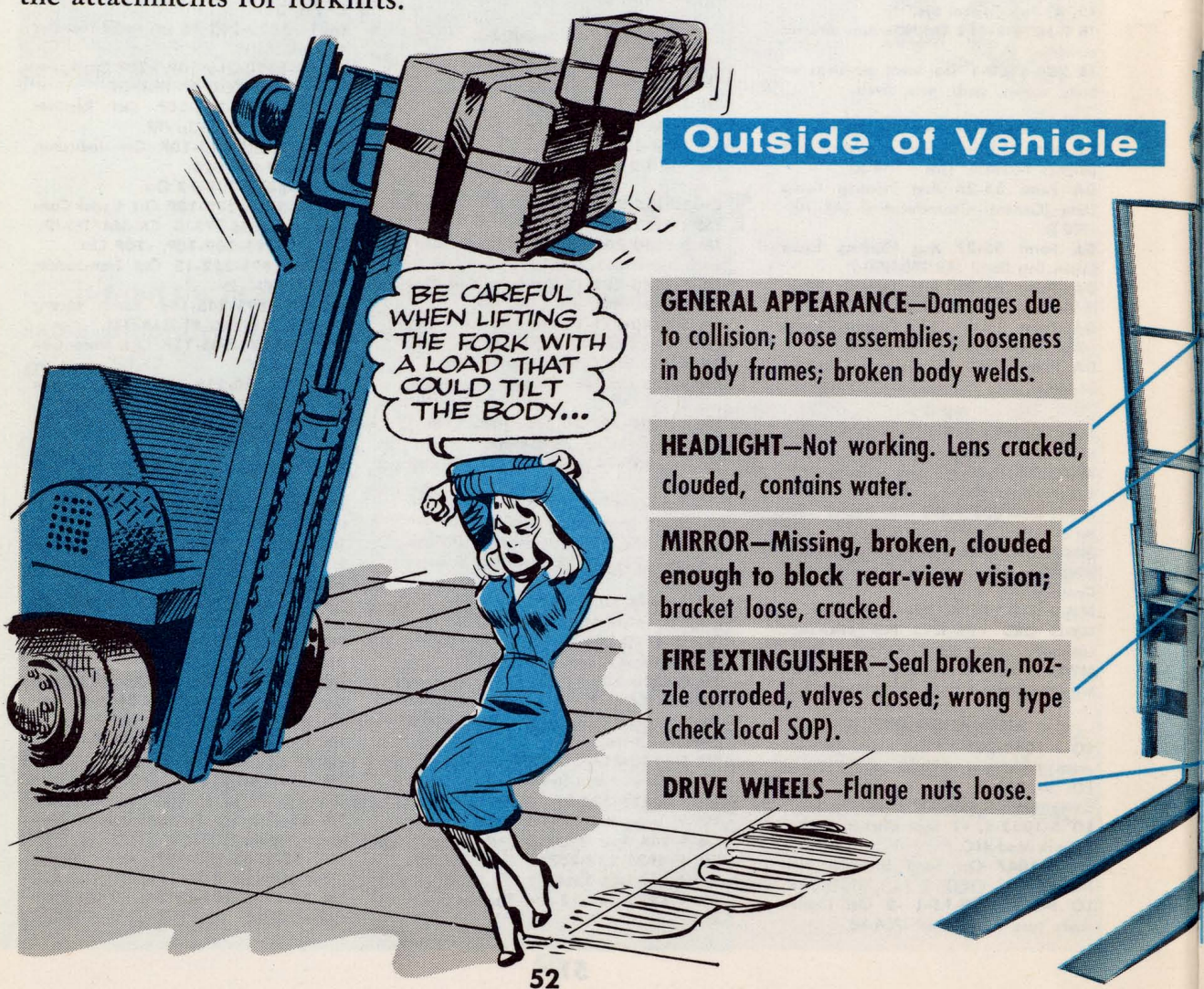
THOSE FORKLIFTS

Yessir, you're a bigger 'n' better man the second you mount that forklift. You all of a sudden sprout the strength of a Samson and the reach of an outer spaceman.

This goes, too, whether you jockey a battery or gas-powered vehicle; whether it'll tote 3,500 pounds or three tons, and whether it goes by the name of Clark, Yale & Towne, Towmotor, Service Caster, or what.

But, strength like this needs takin' care of. Vitamins maybe won't help, but certain light exercise will . . . like lubing and wiping and checking . . . and, well, you get the idea.

There are all kinds and shapes of forklifts—one for every kind of operation. (TM 10-1619, March 1956, gives the lowdown on some 175 different ones. Get a copy of this for details on your vehicle—its TM, LO, FSN, performance data, manufacturer, etc.) Also get TB 10-1610-1 (Jun 54) which gives you dope on all the attachments for forklifts.



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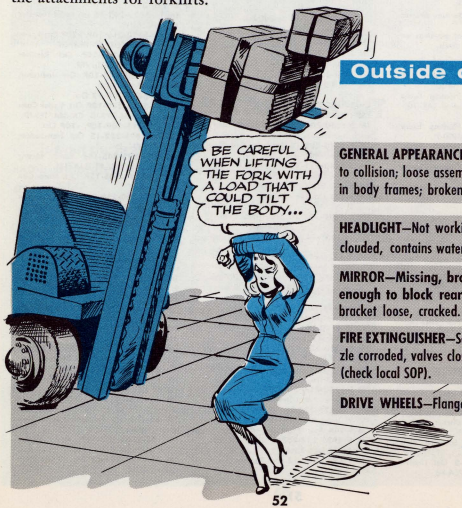


Outside of Vehicle

GENERAL APPEARANCE—Damages due to collision; loose assemblies; looseness in body frames; broken body welds.

HEADLIGHT—Not working. Lens cracked, clouded, contains water.

MIRROR—Missing, broken, clouded enough to block rear-view vision; bracket loose, cracked.

FIRE EXTINGUISHER—Seal broken, nozzle corroded, valves closed; wrong type (check local SOP).

DRIVE WHEELS—Flange nuts loose.

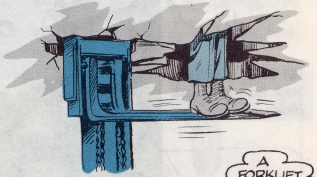
GAS & ELECTRIC MODELS

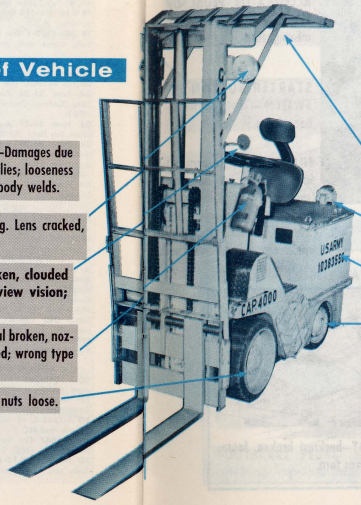
But, all models, gas or electric, with hydraulic or mechanical lifts, etc., are really sisters under the skin. That's why this one "do-it-yourself" will just about clue you on the whole lot. Especially if you'll keep your eye peeled for sections below that apply specially to your equipment. Okay?

Now, you'll notice that some of the deficiencies are in **blue type**. These are the serious deficiencies—the kind that wear out your rig faster, or stop it cold, or make it real unsafe to operate. They have to be fixed pronto.

But don't ignore those minor deficiencies. They're the juvenile delinquents of preventive maintenance—the kind that gang up and do a mugging job on your lift and your own record if you don't spank 'em while they're young.

And don't overlook those MWO's. AR 750-8, Appendix IV, says you get a major gig for an MWO on the "current urgent list" that's not been installed.





OVERHEAD GUARD—Bent, loose, cracked; cotter pins worn, rusted.

TAIL LIGHT—Not working. Lens cracked, clouded, obstructed with paint.

NATIONAL & UNIT MARKINGS—Missing, incorrect, not legible.

STEERING WHEELS—Noisy; oil leaks around flanges (check vehicle's LO); flange nuts loose, worn.

TIRES – Pneumatic: Tread worn smooth; **cut to fabric**; uneven wear. Incorrect pressure (check vehicle's manual for right pressure). Valves bent, cap missing.

Solid: Tread worn to 1/2-in thickness (needs replacing).

GAS & ELECTRIC MODELS

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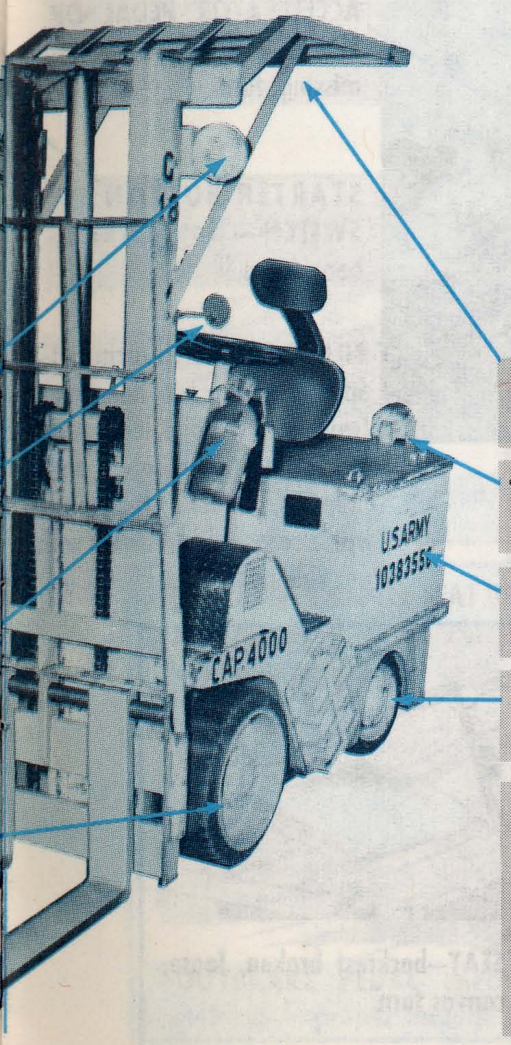

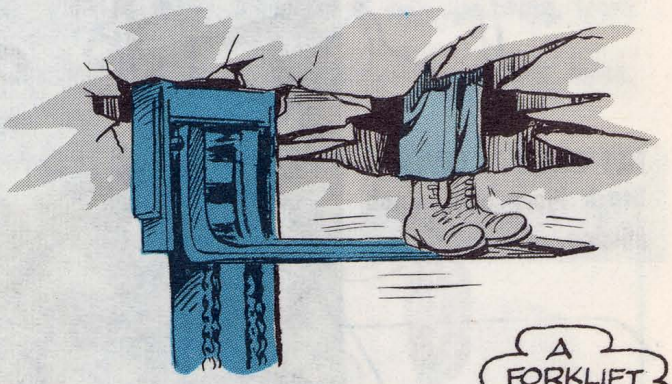

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Solid: Tread worn to 1/2-in thickness (needs replacing).

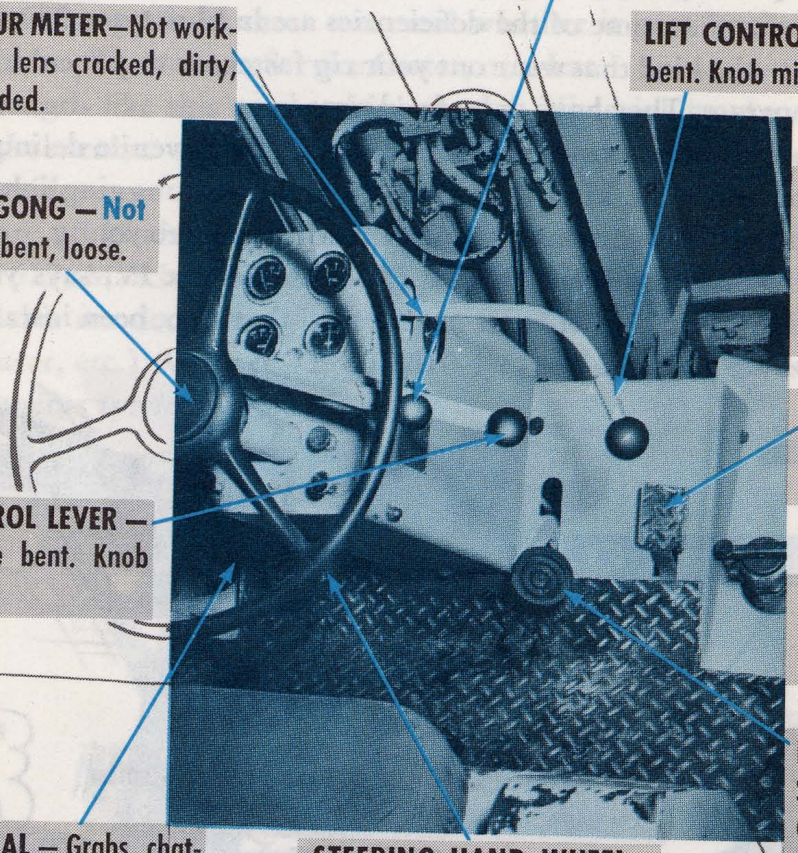
Operator's Compartment

PUBS, RECORDS & FORMS—Missing, unreadable, incorrect; forms not filled out. Should have TM, LO, DD110, Standard Form 46, DD Form 518 and SF 91 within reach. Latest DA Form 465 and DA Form 10-46 should be in Organizational Equipment File (DA Form 478).

FORWARD-REVERSE SHIFT LEVER—Stuck, loose, bent. Knob missing.

HOUR METER—Not working, lens cracked, dirty, clouded.

LIFT CONTROL LEVER—Stuck, loose, bent. Knob missing.



HORN OR GONG—Not operating, bent, loose.

PARKING BRAKE LEVER—Incorrect adjustment (should hold vehicle on reasonable incline with at least 1/3 ratchet travel in reserve).

ACCELERATOR PEDAL OR LEVER—Sticks, loose, boot missing, torn.

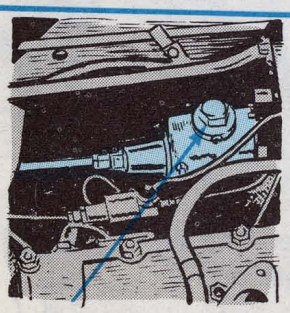
TILT CONTROL LEVER—Stuck loose bent. Knob missing.

STARTER BUTTON OR SWITCH—Not working bent, loose.

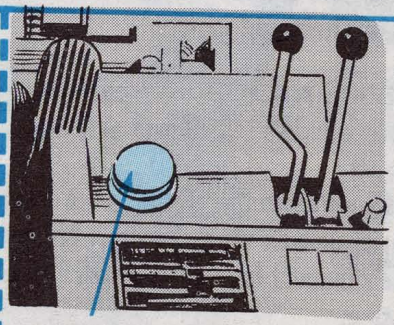
BRAKE PEDAL (Hydraulic)—Spongy, improper adjustment (travels to a point less than 2 inches from floor); gives under pressure. (Should stop vehicle within reasonable distance without side-pull.)

CLUTCH PEDAL—Grabs, chatters, slips. Improper free play (should travel 1½ inches).

STEERING HAND WHEEL—Bent, cracked, excessive play; binding, column or bracket insecure.



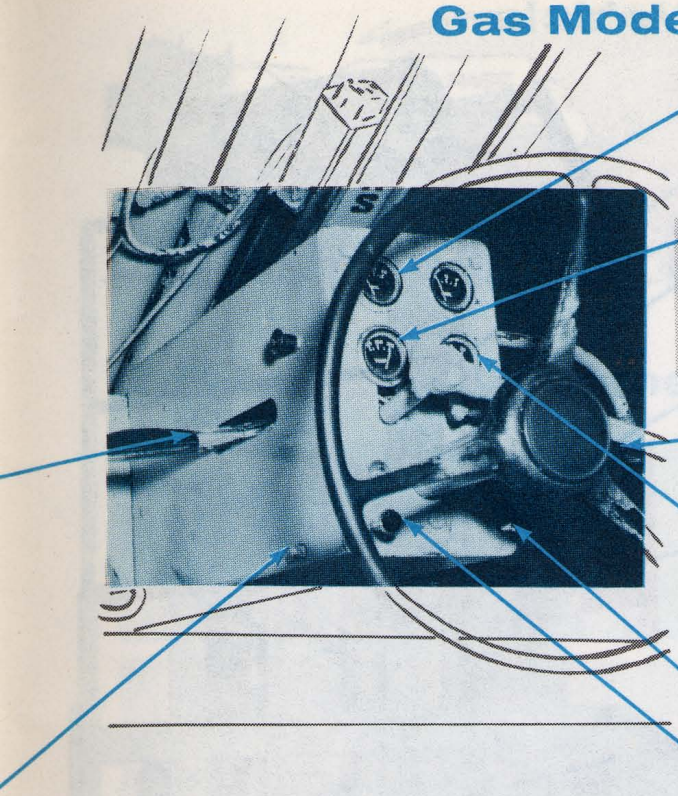
BRAKE MASTER CYLINDER (Hydraulic)—Leaks; not up to level (must be ¾ full).



HYDRAULIC FILL—Oil level low (check vehicle's LO for proper capacity).

SEAT—backrest broken, loose; canvas torn.

Gas Models Only



OIL PRESSURE GAGE—Lens cracked, dirty, clouded. (Check vehicle's manual for correct pressure at idle and at normal operating speed.)

TEMPERATURE GAGE—Lens cracked, dirty, clouded; doesn't work right (should show gradual rise during warm-up period until temperature reaches normal operating point of between 150-160 degrees.)

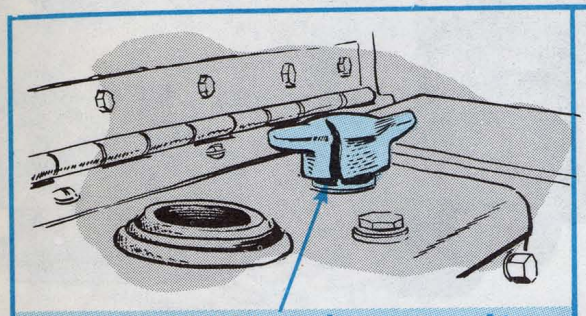
IGNITION SWITCH—Loose, broken.

AMMETER—Lens cracked, dirty, cloudy. (Should register high charge reading—max 12 amps—for a short time after starting engine; slight positive charge at normal operating speeds.)

CHOKE—Handle missing, not operating, loose.

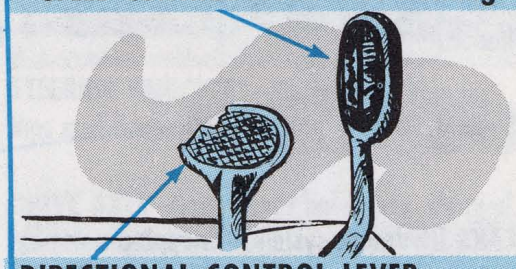
HAND THROTTLE—Missing, not operating, loose.

Electric Models Only



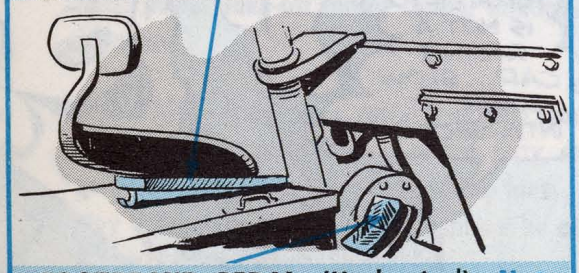
MASTER SWITCH—Broken; not working.

SPEED CONTROL LEVER—Not working.

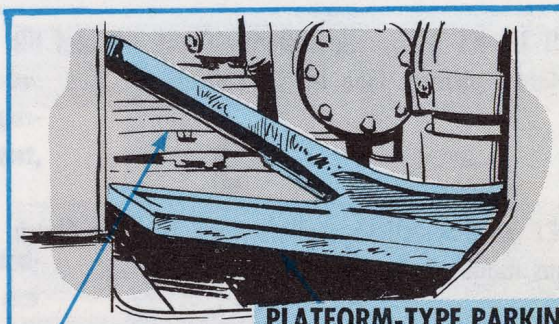


DIRECTIONAL CONTROL LEVER—Stuck, loose, bent. Knob missing.

OPERATOR'S SAFETY SEAT BRAKE (Mechanical)—Not working (vehicle should not roll when operator's out of seat).



FOOTBRAKE PEDAL (Mechanical)—Not working. Improper linkage adjustment.



SAFETY PEDAL OR PLATFORM—Not working.

PLATFORM-TYPE PARKING AND SERVICE BRAKE (Mechanical)—Doesn't hold right. Improper adjustment.

Front of Vehicle

MAST ASSEMBLY—Bent, cracked. Loose bolts, nuts.

CYLINDER COVER AND PACKING GLANDS—Oil leaks; covers and glands loose.

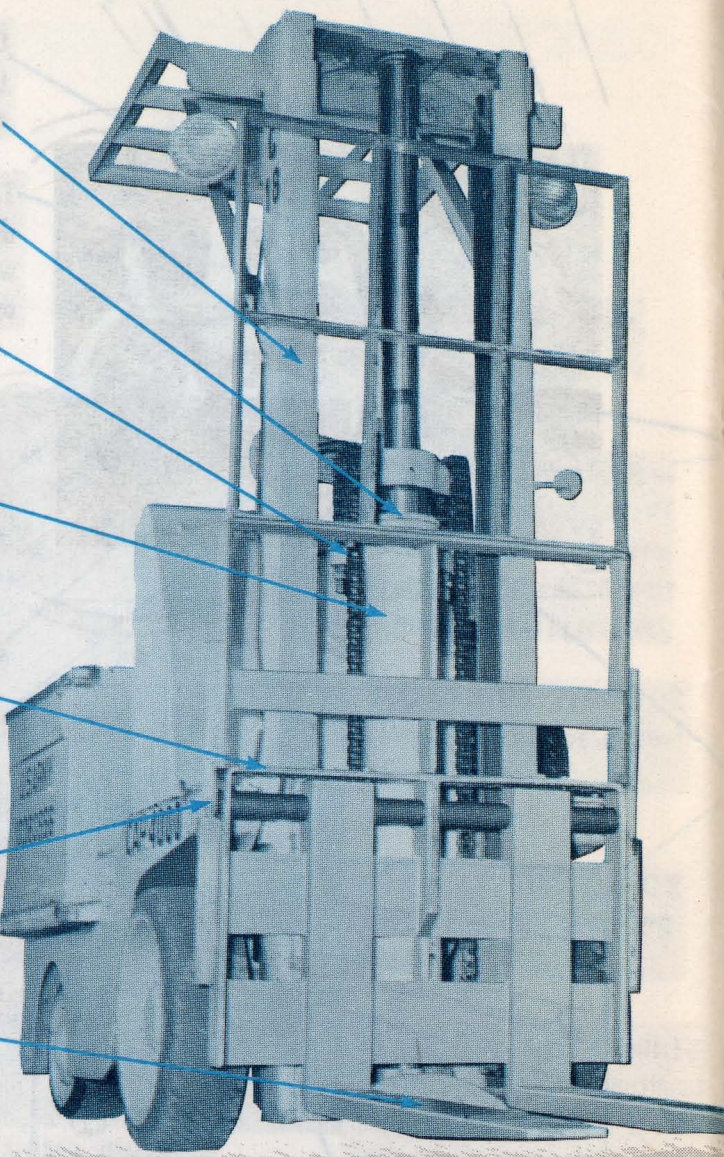
CHAINS (Lift, steering wheel drive or hoist-winch drive)—**Dangerously worn,** dirty, dry; rollers pitted, broken, painted.

LIFT CYLINDER—**Insecurely mounted;** leathers on lift cylinder piston worn. (Test: Pick up capacity load, move hand control to NEUTRAL. If carriage creeps down, leathers need replacing.)

CARRIAGE—Backrest loose; bolts loose; rollers and shoes cracked, worn, tight; carriage damaged, out of alinement.

TILT CYLINDER—**Insecurely mounted.** Leathers on tilt cylinder piston worn. (Test: Follow method for Lift Cylinder.)

FORKS—Bent, locking pins missing.



AIR LEAKS (Hydraulic system)—Snapping noise by pump; piston rod jumps. (Check TM 10-1600 with Change 4—Apr 53—Sect. III, para 84).

OIL LEAKS (Hydraulic system)—Check lift and tilt cylinder pistons. (See TM 10-1600.)

LIFT (Mechanical)—Sprockets worn, **broken.** Clutch (gas models only) slips; wrong adjustment.

TILT (Mechanical)—Sprockets worn, broken. Clutch (gas models only) slips; wrong adjustment.

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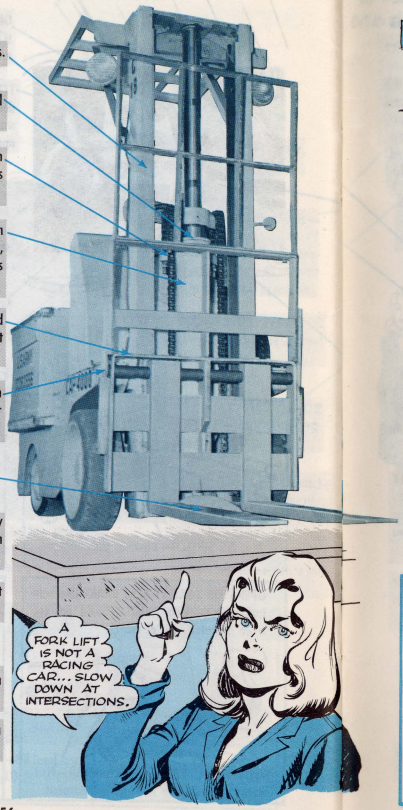
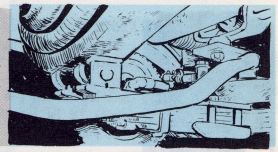


Underneath Vehicle

SPRING—Vehicle sags. Look for worn, loose clips, leaves, U-bolts, hangers, shackles or coils.

STEERING MECHANISM—Bent, improperly adjusted. (Check arms, tie-rods, drag link, Pitman arm, seals and boots for heavy wear. Check lube level.)



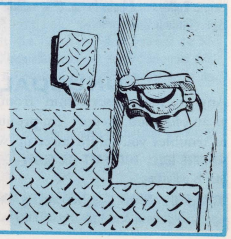
STEERING KNUCKLES—Badly worn; king pins, bearings and bushings worn.

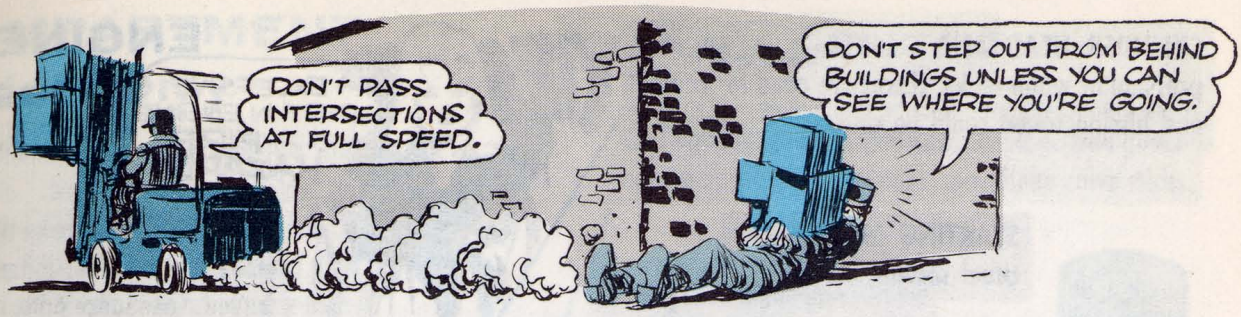
DRIVE AXLE—Noisy; vent hole dirty, clogged. (Hot after operation.)

Gasoline Models Only

TRANSMISSION—Unusual sounds; leaks lube. (Check for insecure mounting, leaks in seals, gaskets; power take-off loose; control linkage **bent, insecure.**)

FUEL TANK—Tank **leaks,** rusty, insecurely mounted; strainer in filler neck missing, rusted, dirty; cap not properly positioned; safety cap spring loose, won't stay closed. Gas level too high (should be at least 2 inches from top of tank).

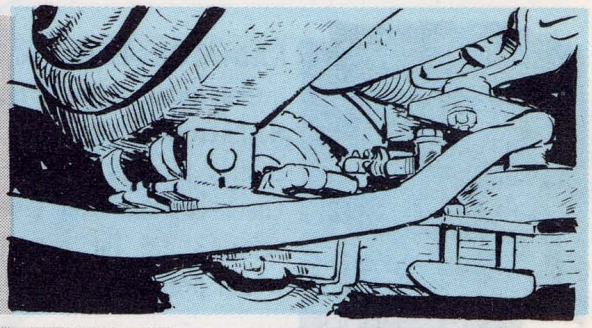


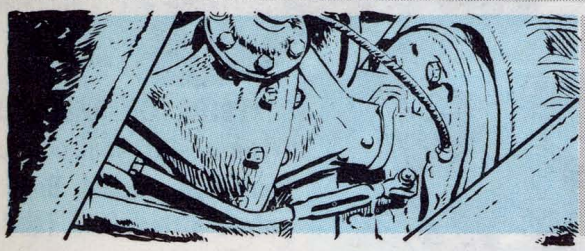


Underneath Vehicle

SPRING—Vehicle sags. Look for worn, loose clips, leaves, U-bolts, hangers, shackles or coils.

STEERING MECHANISM—Bent, improperly adjusted. (Check arms, tie-rods, drag link, Pitman arm, seals and boots for heavy wear. Check lube level.)





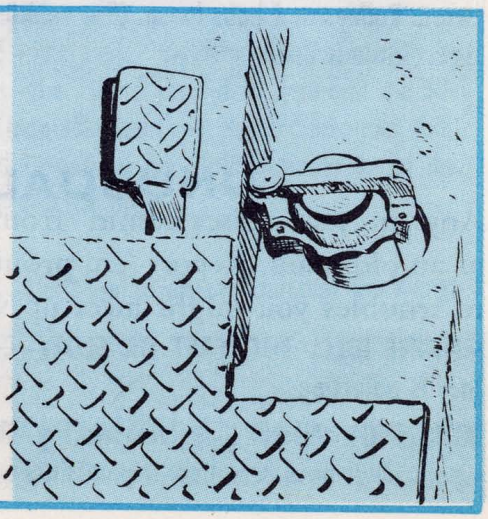
STEERING KNUCKLES—Badly worn; king pins, bearings and bushings worn.

DRIVE AXLE—Noisy; vent hole dirty, clogged. (Hot after operation.)

Gasoline Models Only

TRANSMISSION—Unusual sounds; leaks lube. (Check for insecure mounting, leaks in seals, gaskets; power take-off loose; control linkage **bent, insecure.)**

FUEL TANK—Tank leaks, rusty, insecurely mounted; strainer in filler neck missing, rusted, dirty; cap not properly positioned; safety cap spring loose, won't stay closed. Gas level too high (should be at least 2 inches from top of tank).



ENGINE
Gas

CYLINDER HEAD AND GASKET—Cracked, compression or water leaks. (Excessive need for coolant and hissing sound could be clues.)

STARTING MOTOR—Unusual sounds, slow.

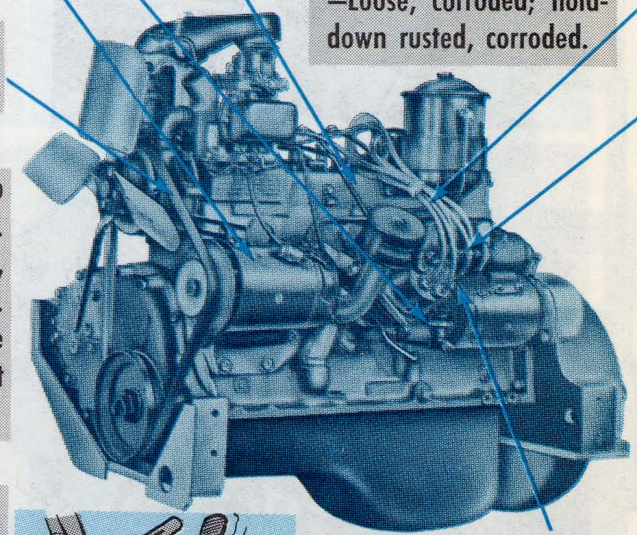
GENERATOR, STARTING MOTOR, SWITCH—Loose; linkage worn; wires, cable connections loose dirty.

FAN BELT—Cracked, dangerously frayed or shredded. (Check vehicle's TM for proper deflection.)

RADIATOR—Leaks; cap gasket missing; fins dirty. Hoses cracked, worn, torn, clamps missing, broken. Check coolant level (See vehicle's TM for correct winter protection).

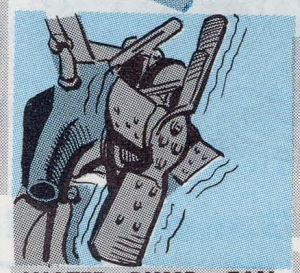
AIR COMPRESSOR unloader valve, governor and lines)—Compressor loose, improperly alined with pulleys; bad clearance on unloader valve; governor loose, not working right; compressor, water, air and oil lines loose, leaky.

DRIVE BELTS AND PULLEYS—Belts loose, frayed, worn. Pulleys and hubs loose. (See vehicle's TM for specifications.)



BATTERY—Cracked, leaks, dirty. Cables loose, frayed. Case loose on carrier. Water level low (Plates must be covered by maximum of ½ inch).

BATTERY CONNECTIONS—Loose, corroded; hold-down rusted, corroded.



DISTRIBUTOR ASSEMBLY—Loose electrical connections. Cap cracked. Breaker points pitted (See TM for specifications).

MAGNETO—Cap and rotor cracked; ventilating hole in cap clogged.

WATER PUMP, FAN SHROUD—Loose, not lubed, leaky; blades loose, out of line.

UNUSUAL ENGINE NOISES

Any unusual noises comin' from under the hood should make you suspicious as an old maid. Report 'em pronto to your mechanic. Here're a couple symptoms to troubles you might meet up with:

ENGINE IDLES TOO FAST OR SLOW—Carburetor needs adjusting.

MISSES OR KNOCKS—Valves sticking. Or maybe spark plugs need attention or points are bad.

UNUSUAL SOUNDS, LACKS POWER—Could be cracked manifold.

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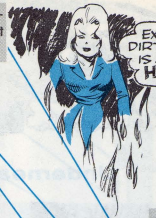

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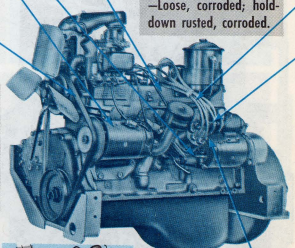

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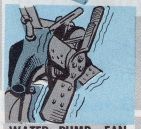

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UNUSUAL SOUNDS, LACKS POWER—Could be cracked manifold.

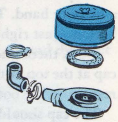
COMPARTMENT Models Only

SPARK PLUGS—Cracked, loose, dirty.

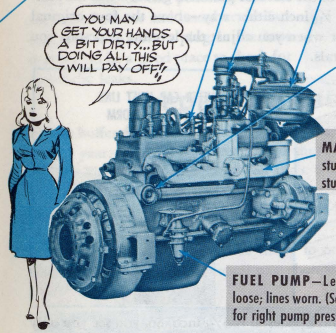
CRANKCASE OIL—Level too low (no lower than ½ inch below top full mark). Too high (no higher than ⅛ inch above full mark). Cap missing, gasket damaged or missing. Stick's baffle missing.

CARBURETOR—Choke, throttle, linkage and governor worn, loose. Carburetor leaks; choke valve sticks.

AIR CLEANERS (Carburetor and air compressor)—Gaskets, seals, clamps, hoses missing, worn; oil level low. (Check vehicle's LO.)



COIL AND WIRING—Cracked, dirty, loose.

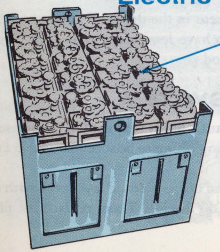


BREATHER—Loose, clogged.

MANIFOLDS—Cracked, loose. Leaking gaskets; studs, bolts, nuts broken, missing. Heat control valve stuck.

FUEL PUMP—Leaks, loose; lines worn. (See TM for right pump pressure.)

Electric Models Only



BATTERIES—There are two main kinds of batteries on forklifts—the 18-cell Lead-Acid type and the 30-cell Nickel-Iron-Alkaline type. Beyond knowing this, however, the operator has little business under the hood of an electric lift.

SWITCHES—Limit and safety switches not working; dirty, not lubed.

LEAKS—Look for puddles of liquid on floor beneath lift. Report same in a hurry.

COMPARTMENT
Models Only

CRANKCASE OIL—Level too low (no lower than 1/2 inch below top full mark). Too high (no higher than 1/8 inch above full mark). Cap missing, gasket damaged or missing. Stick's baffle missing.

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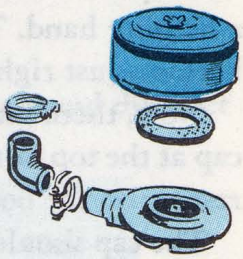

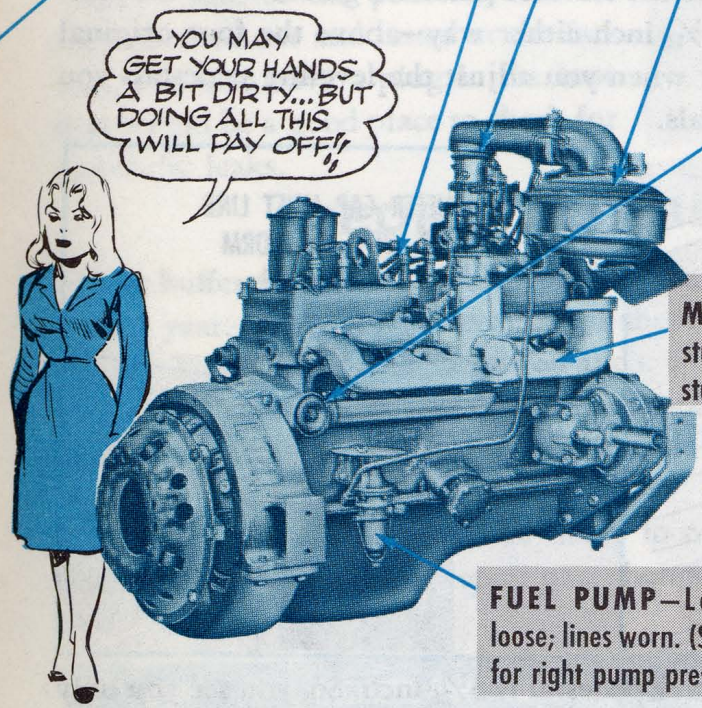

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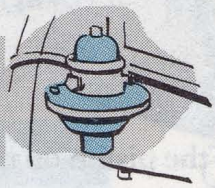

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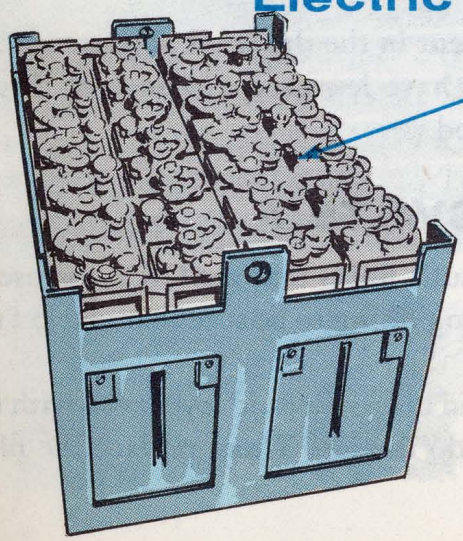

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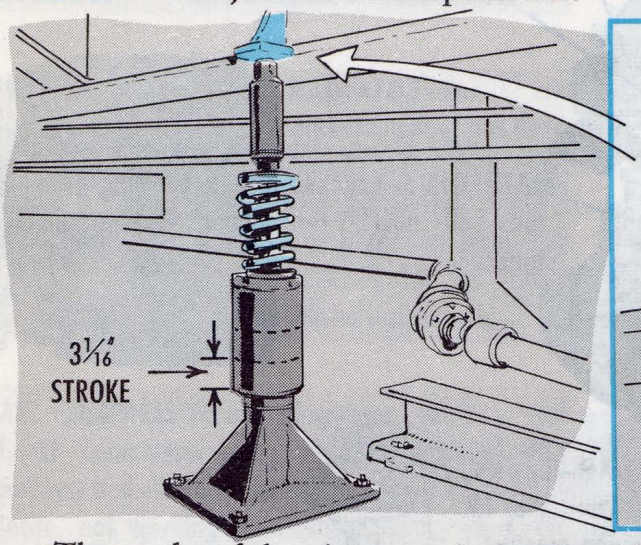
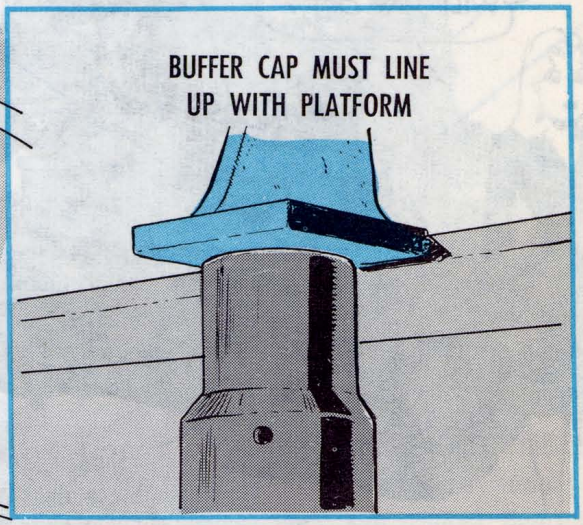
LEAKS—Look for puddles of liquid on floor beneath lift. Report same in a hurry.

They've been added to your Nike elevator system to give the leveling pedestals a helping hand. These buffer pedestals were designed to make sure your elevator bottoms just right when it's carrying a Hercules payload.

Now, there's no sweat to keep 'em doing their job. First off, you want the buffer cap at the top of the pedestal to be lined up with the platform when the elevator's resting on the bottom.

The cap should touch the bottom of the elevator platform girder when the platform is three inches—give or take $\frac{1}{16}$ inch either way—above the four original leveling pedestals. This means that when you adjust the leveling pedestals you also have to adjust the buffer pedestals.





The stroke of the piston on the buffer pedestal is $3\frac{1}{16}$ inch. So, you see you only have $\frac{1}{16}$ inch leeway to play around with. And, it's real important that the pedestals are adjusted right.

You'll have about a 2 inch vertical adjustment in the threaded adjustment cap to the buffer piston rod. You never want to have less than $1\frac{1}{2}$ inch of thread engagement between the cap and the piston rod.

HYDRAULIC SYSTEM

The buffer pedestal will take all the hydraulic fluids that are OK'd for use in the elevator. You want to keep it upright during filling to be sure that you get the proper fluid level.

To fill it, you remove the two filler plugs and bring the fluid level even with the filler holes. You can use an oil squirt can to do the job. Then, replace the filler plugs.

MISSILE BLASTS

Keep An Eye On...

YOUR BUFFER-TYPE PEDESTALS

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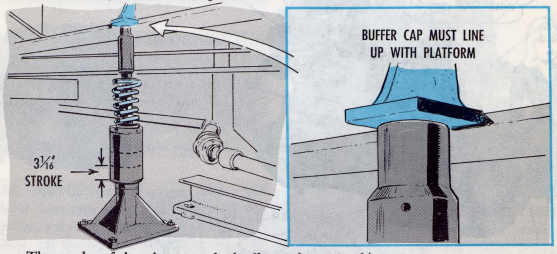

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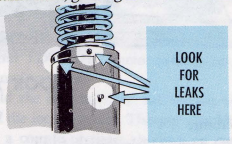
REGULAR PM

During your regular PM, check all nuts, bolts and set screws and make sure they're tight.

The grease fitting'll take a little GAA every six months or so.

Eyeball it weekly for hydraulic fluid leaks. Also, give a gander around the filler plugs between the cylinder cap and the cylinder, and the packing nut.



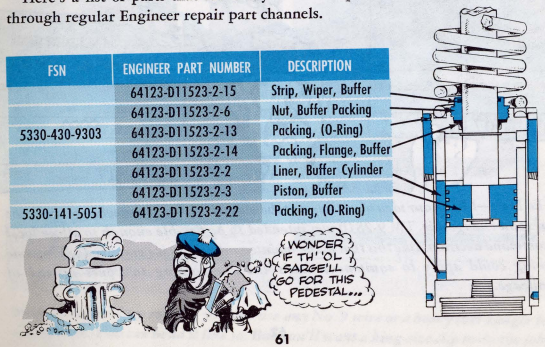
If it's one of the pedestals that've been checked out and tested at the factory, it'll also have a plug in the base that would be a good place to check for hydraulic leaks.

PEDESTAL ASSEMBLIES

The buffer pedestal assemblies ought to be disassembled, inspected and cleaned once a year. If you don't have the go-ahead to do the job, call in your support people. They'll check out the piston and cylinder liner for wear. You should have a clearance between 'em of .001 to .003 inch. If it goes a little more, that's okay. But, if the clearance is more than .008 inch—then you want to replace the piston or the line, or both.

Here's a list of parts that are likely to need replacement. You can get them through regular Engineer repair part channels.

FSN	ENGINEER PART NUMBER	DESCRIPTION
	64123-D11523-2-15	Strip, Wiper, Buffer
	64123-D11523-2-6	Nut, Buffer Packing
5330-430-9303	64123-D11523-2-13	Packing, (O-Ring)
	64123-D11523-2-14	Packing, Flange, Buffer
	64123-D11523-2-2	Liner, Buffer Cylinder
	64123-D11523-2-3	Piston, Buffer
5330-141-5051	64123-D11523-2-22	Packing, (O-Ring)



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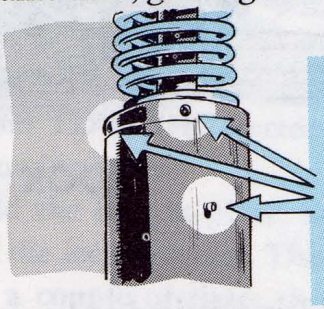

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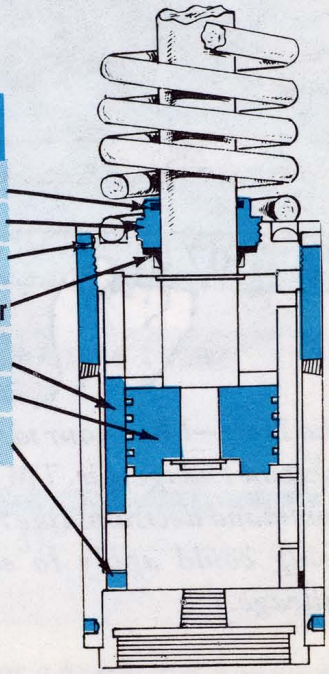
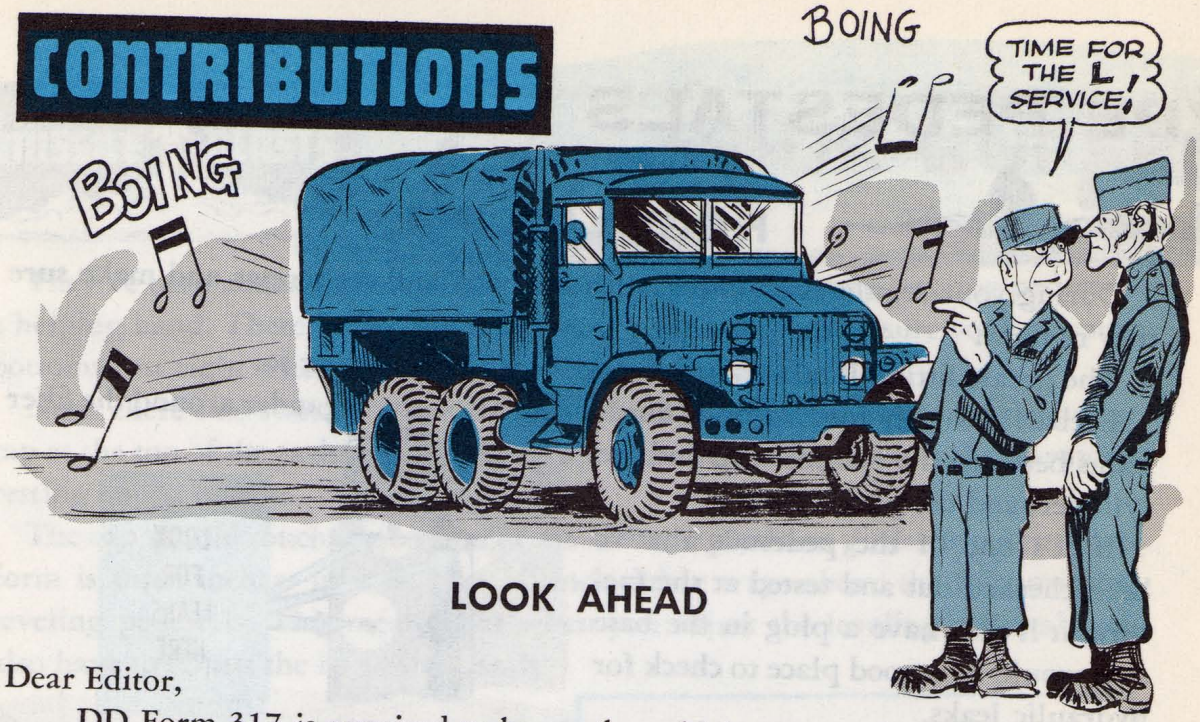


CONTRIBUTIONS



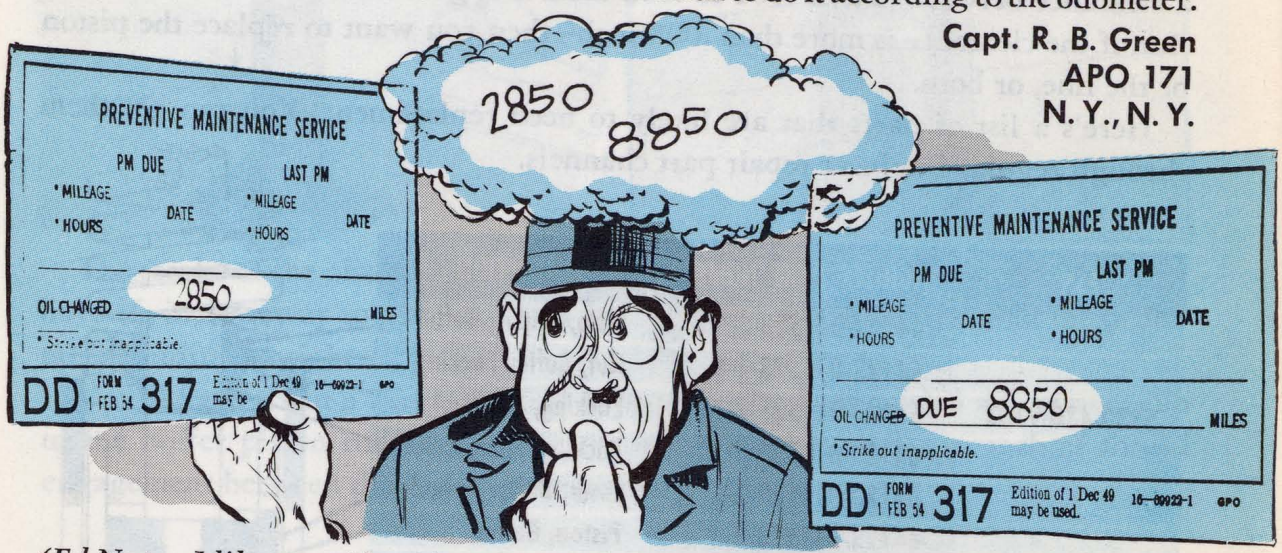
LOOK AHEAD

Dear Editor,

DD Form 317 is required to be on the vehicle as a reminder of the next L service. We have, with higher headquarters' permission, modified the "oil changed" portion to read "oil change" . . . requiring entry of the mileage when an oil change is due rather than when changed last. No mental arithmetic is required this way.

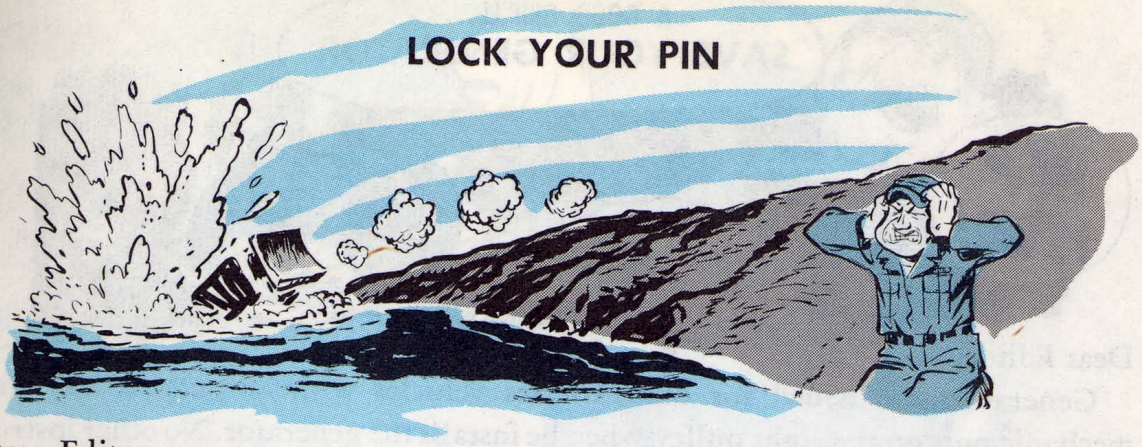
Maybe TM 9-2810 doesn't require this but, since the oil changes don't always coincide with the L service, the 317 tells us when to do it according to the odometer.

Capt. R. B. Green
APO 171
N. Y., N. Y.



(Ed Note—I like your idea of cutting out the mental arithmetic on when to make the next oil change, Sir. TM 9-2810 was intended to be flexible enough to allow local command decisions like this that make maintenance easier for everybody. The same thing could apply to equipment that's lubed according to hours instead of mileage.)

LOCK YOUR PIN



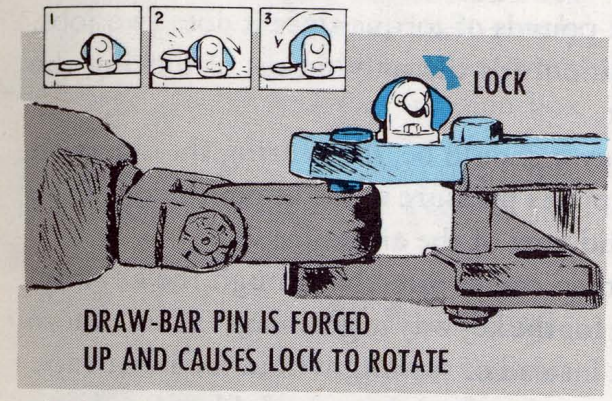
Dear Editor,

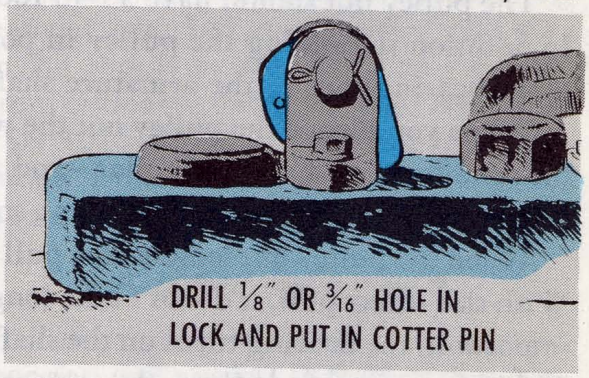
Here's a fix we've worked out on our TD-18 IHC tractor to keep the draw-bar pin in a locked position when we're towing a pan.

Until we added a cotter pin to hold the lock in place, the weight of the pan forced the draw-bar pin up and forced the lock to rotate. This put a lot of strain on the upper half of the draw bar and a couple of times the pan unhooked. We couldn't put the pin back in until we straightened out the upper half of the bar.

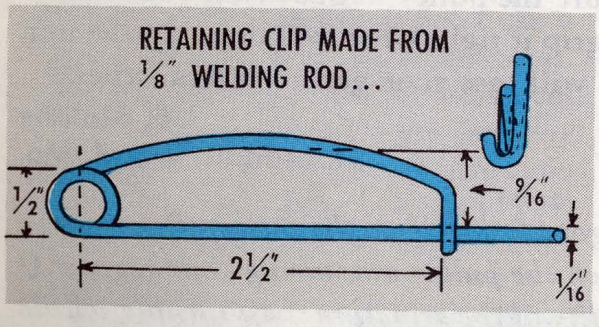
All you have to do is drill a 1/8-in or 3/16-in hole in the lock and slip a cotter pin in. Bend back the ends of the cotter pin and your lock's locked to stay.

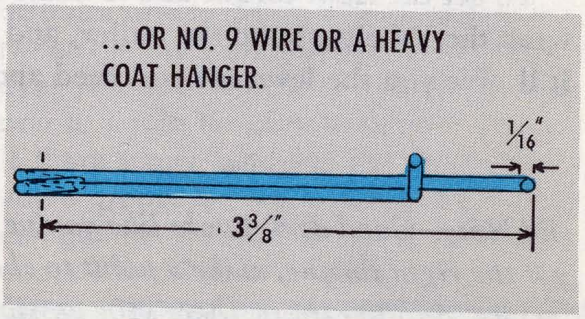
Training Center Maintenance Gang
Ft. Leonard Wood, Mo.



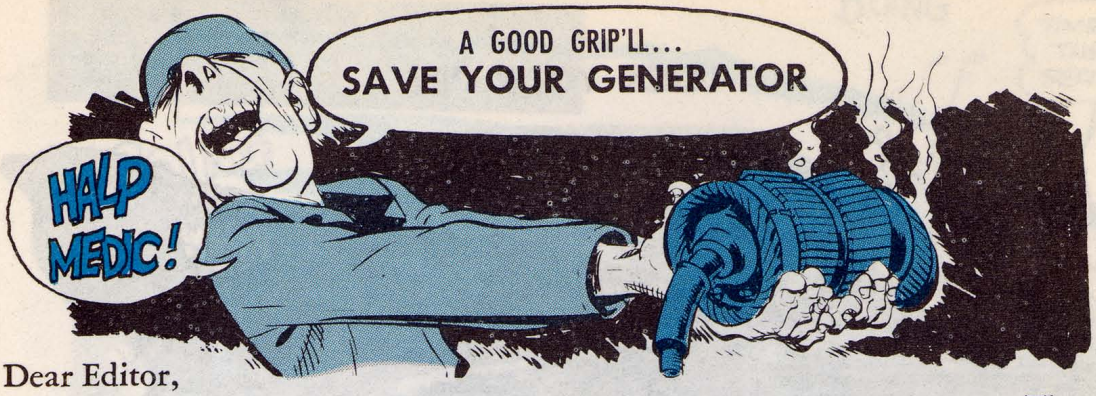


(Ed Note—Sounds good, but first try using a hammer to force the lock into position. Then if it still doesn't hold—use your fix. Better yet make yourself a retaining clip





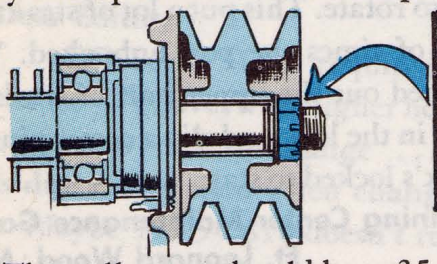
from 1/8-in welding rod—or you can use any No. 9 wire or a heavy coat hanger for that matter. You can bend it like so. But you'll want a king-size clip to do the job).



Dear Editor,

Generators are issued for our M-series vehicles without pulleys. The unit mechanic puts on the right pulley when he installs the generator. No other instructions being given, he simply holds the pulley by hand, draws up the nut, figures it'll hold, then forgets it.

This is where we run into trouble with our Delco-Remy generators and why they end up in the re-build shop.



KEEP PULLEY NUT TORQUED TO 35-40 FOOT-POUNDS

The pulley nut should have 35-40 foot-pounds of torque since it does two jobs. In addition to holding the pulley in position, it's the only means of locking the inner bearing race to the armature shaft.

When you torque the pulley nut the way it should be, the bearing shoulders on the armature, washers, and collar—and applies pressure to the opposite side of the bearing. This holds the inner race as a solid part of the armature shaft.

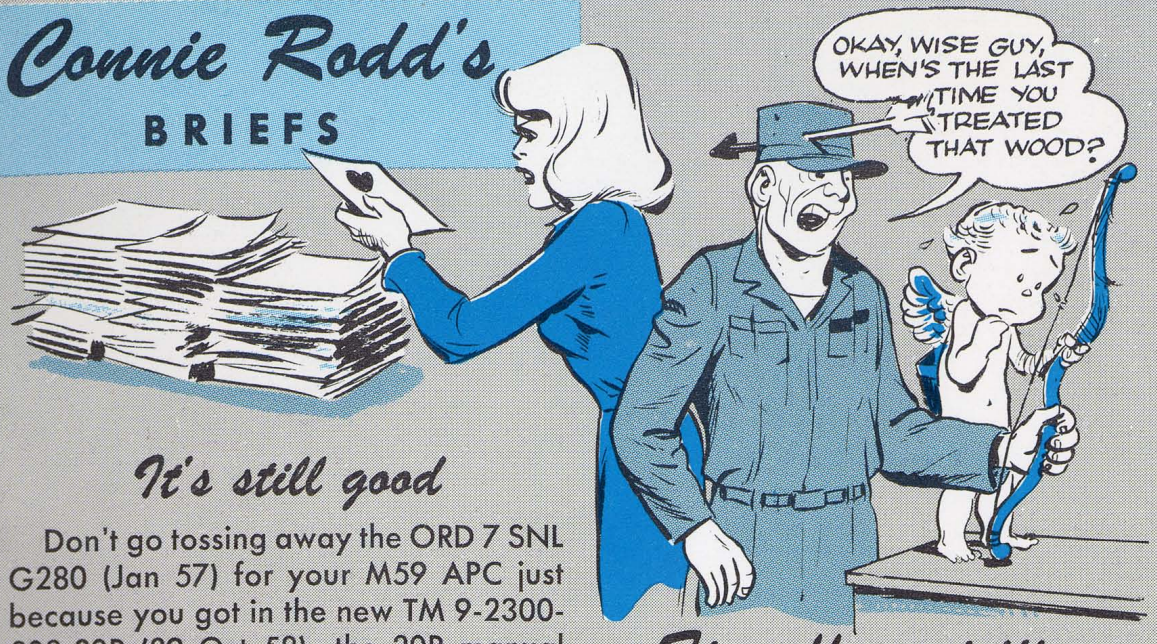
When the pulley nut loosens, the pull then comes directly through the keyway. With this direct pull, it doesn't take long for the keyway to get mangled. But, more important, the bearing turns on the shaft instead of turning within the inner race. This causes wear and allows the armature to drop and drag the field coil, ruining the unit.

To get the right torque and to make sure the pulley nut bottoms, you want to wrap the V-belt around the pulley, and grip it tight when you draw up the nut. It'll give you the leverage you need and will ease your generator headaches.

J. C. Malone
Ft. Leonard Wood, Mo.

(Ed Note—Good deal. Looks like you've got a firm grip on the answer. Once you've got the right torque, make a point to check the pulley nut during your regular Q service. Another thing, there's the possibility of the armature shaft turning within the inner race of the bearing if you race your engine when cold. The grease in the bearing is extra heavy when it's cold and the inner and outer races may seize.)

Connie Rodd's BRIEFS



It's still good

Don't go tossing away the ORD 7 SNL G280 (Jan 57) for your M59 APC just because you got in the new TM 9-2300-203-20P (29 Oct 58)—the 20P manual only supersedes Section II of the ORD 7. The word in Section I is still good—and you need it.

A bit con-fuse-ing

Say now . . . if Signal has bucked back your requisition and says it can't supply you with those 1/32-amp fuses for your Nike-Ajax interconnecting junction box—the one in the BC van—try your luck with Ordnance. The fuse, FSN 5920-280-5029—shows up in ORD 7 SNL Y4 Section 2, dated April 1959.

Sam, the coat's too long!

Some guys only think of vehicles, weapons and other mechanical equipment when they think of DA Form 468 (Unsatisfactory Equipment Report). You're missing a bet if you don't use a UER to send in the dope about uniforms, protective clothing and other individual items if they're not doing the job they were made to do. AR 700-38 gives you the lowdown. Its change 1 (26 Aug 1959) tells you the latest rating for Quartermaster items.

Fire off requisition

Don't take a chance of having the M8 spotting rifle pop-off accidentally when you open the breechblock on your M40A1 or M40A1C recoilless rifle. Instead, get rid of the trigger spring (7307474) now in the 106 in favor of a heavier one. Tell your support unit it's in the supply system and can be had from Ordnance under Spring (7309620), FSN 1015-587-2391. The old spring is made from .018-in stock . . . the new one out of .025-in stock.

Relay this info

You can help things along after your support unit applies TB 9-5049/6 to the relay assemblies on your M2 Corporal erector. The TB enlarges the hole in each actuator arm to cut down on binding between the arm and shoulder bolt. Whenever you have the relay covers off, it'd pay to jiggle the arm with your finger. If there's any binding, put some plug valve grease on the shoulder bolt. You can get the grease from Quartermaster under FSN 9150-571-0228.

Would You Stake Your Life on the Condition of Your Equipment?

They Said It Couldn't Be Done